AMATEUR RADIO

MAY 1994
Volume 62 No 5

Journal of the Wireless Institute of Australia

IN THIS ISSUE:

Amateur Radio on a Budget
A Russian Military Aircraft Radio
The Joy of Kit Building

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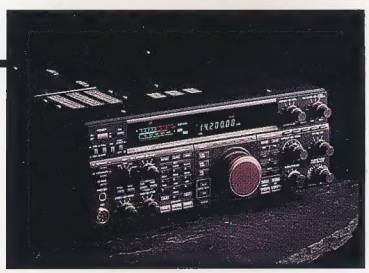

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Cover

Shannon Bathis VK2JSB operates the NSW Division's HF station at Eastern Creek Raceway, Sydney, during Hobbyfest 93 (see page 10 of the April 1994 issue of Amateur Radio).

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A radiocommunication service for the purpose of self-training, intercommunication and technical investigation carried out by amateurs, that is, by duly authorised persons interested in radio technique solely with a personal aim and without pecuniary interest.

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Federal QSP

As foreshadowed in my comments in the April issue of *Amateur Radio,* this will be the last column that I will be writing in my capacity as Federal President. By the time you read this, the WIA Annual Federal Convention will be over and there will be a new Federal President.

One hope I have is that I will be able to have more on-air time in the future. It is some time since I have had the opportunity to spend large amounts of time on-air. Activities around the house and yard have dictated a relocation of several of the antennas and equipment. In some cases the dismantling has been done but the re-assembly in a new location in the yard is awaiting time and effort to get parts of the station back on the air.

I'm sure we have all been in the same situation at some time or another. Maybe with the lesser responsibility I can find more time to get those missing bits of the station up and going again. Some 12 months ago my wife obtained her Novice Licence and, watching the thrill she has obtained from her first overseas contact, her first contest, etc, has emphasised for me the aspects of radio I have been missing.

Reduced time on the air seems to be the normal thing for many who work within the WIA and the amateur community in a voluntary capacity. The time that they give is what allows us all to continue to enjoy our hobby in whatever way we wish. There are those who would say that this is just a hobby, so why are the Divisions and the WIA at the Federal level spending so much time on issues that seem to be unrelated to amateur radio?

The operations of the WIA, both at the Divisional and Federal level, are governed by the Australian Securities Commission and the relevant aspects of Company Law. This law, as it affects bodies like the WIA, has changed in recent times and those who are administering the WIA at all levels have been required to ensure that they are conforming with all relevant ASC requirements. This type of activity takes time. At the Federal level I believe that the end is in sight and we will soon be able to put such matters behind us and get back to considering issues which are more directly related to the hobby.

In the end it is only a hobby, a point which sometimes escapes some people. We pride ourselves on being able to operate our band plans on the basis of them being a gentleman's agreement. This is the type of thinking which needs to also become embedded in our activities in the administrative side of our hobby. Sure, there is a business side to it, and business has its place, but we should all try to think more of our gentleman's agreement way of operating, both in our actions on-air, as well as our actions in the administrative side of our hobby. Let's try and get on with our fellow amateur and not turn our hobby into something rivalling the happenings in the political arena.

Let's be proud of our status as amateur radio operators and proud of our relationship with our fellow operators and the community at large. Remember, we need to be good citizens, both within our hobby and in the wider community, if our hobby is to survive well into the next century.

That's it from me. I wish you all well and also the best to the new Federal President and the new Federal Council.

Kevin Olds VK1OK, Federal President
ar

Editor's Comment

Fact Finding

It is a human weakness to prefer a simply stated case, easily repeated and seeming plausible, even though it may not be in accord with the facts. Often this is because the facts are difficult to find, or even when found seem prohibitively complex. Simple slogan-type statements are easier to comprehend.

I am motivated to start out this way by several situations which apply to *Amateur Radio* magazine and to the WIA at present. We have in this issue some "Update" comments and "Technical Correspondence" on the subject of antenna feedlines and standing waves, following an article we published last month.

We also have some technical correspondence (not in this issue) on the relative effectiveness of signals complying with our VK power limits of 400 W PEP for SSB and 120 W for CW (based on 150 W DC input).

Both topics have caused several of us to think seriously about the accuracy of our understanding of transmission lines and power rating systems. To some extent we are still trying to find the "facts"!

Another prolific area for this bias towards the simple solution (which may be no solution at all) is in the field of politics; both our own Institute council management, and the larger arena of State or Federal Government. Here there is fertile ground for the embroidered fact, the half-truth, the mis-representation, and the outright lie! As the satirical saying goes "Don't confuse me with the facts, my mind is made-up"!

How may we be sure we have all the facts before we reach an opinion? I'm sorry, but the question is almost impossible to answer. The more facts are discovered in any real-world situation, the more are found hidden beneath them! Life wasn't meant to be easy!

To change the subject completely, in March I asked again after two years whether Harry Angel VK4HA, at 102,

Continued page 55

WIA Divisions

The WIA consists of seven autonomous State Divisions. Each member of the WIA is a member of a Division, usually their residential State or Territory, and each Division looks after amateur radio affairs within their State.

Division	Address	Officers			Weekly News Broadcasts	1994 Fees	
VK1	ACT Division GPO Box 600 Canberra ACT 2601 Phone (06) 247 7006	President Secretary Treasurer	Rob Apathy Len Jones Don Hume	VK1KRA VK1NLJ VK1DH	3.570 MHz LSB, 146.950 MHz FM, 438.525 MHz FM each Monday evening (except the fourth Monday) commencing at 8.00 pm.	(F) (G) (S) (X)	$70.00 $56.00 $42.00
VK2	NSW Division 109 Wigram Street Parramatta NSW (PO Box 1066 Parramatta 2124) Phone (02) 689 2417 Fax (02) 633 1525	President Secretary/ Treasurer (Office hours	Terry Ryeland Roger Harrison Mon-Fri 11.00-14.00 Wed 1900-2100)	VK2UX VK2ZRH	From VK2WI 1.845, 3.595, 7.146*, 10.125, 24.950, 28.320, 52.120, 52.525, 144.150, 147.000, 438.525, 1281.750 (*morning only) with relays to some of 14.160, 18.120, 21.170, 584.750 ATV sound. Many country regions relay via a local 2 metre repeater. Sunday 1000 and 1915. Highlights included in VK2AWX Newcastle Monday 1930 on 3.593 plus 10mx, 2mx, 70cm, 23cm. News headlines by phone (02) 552 5188. Some broadcast text can be found on the Packet network.	(F) (G) (S) (X)	$66.75 $53.40 $38.75
VK3	Victorian Division 40G Victory Boulevard Ashburton Vic 3147 Phone (03) 885 9261	President Secretary Treasurer Office hours	Jim Linton Barry Wilton Rob Hailey Tue & Thur 0830-1530	VK3PC VK3XV VK3XLZ	1.840MHz AM, 3.615 SSB, 7.085 SSB, 53.900 FM(R) Mt Dandenong, 146.700 FM(R) Mt Dandenong, 146.800 FM(R) Mildura, 146.900 FM(R) Swan Hill, 147.225 FM(R) Mt Baw Baw, 147.250 FM(R) Mt Macedon, 438.075 FM(R) Mt St Leonard 1030 hrs on Sunday.	(F) (G) (S) (X)	$72.00 $58.00 $44.00
VK4	Queensland Division GPO Box 638 Brisbane QLD 4001 Phone (07) 284 9075	President Secretary Treasurer	Ross Marren Lance Bickford David Travis	VK4AMJ VK4ZAZ VK4ATR	1.825, 3.605, 7.118, 10.135, 14.342, 18.132, 21.175, 24.970, 28.400 MHz. 52.525 regional 2m repeaters and 1296.100 0900 hrs Sunday. Repeated on 3.605 & 147.150 MHz, 1930 Monday	(F) (G) (S) (X)	$70.00 $56.00 $42.00
VK5	South Australian Division 34 West Thebarton Road Thebarton SA 5031 (GPO Box 1234 Adelaide SA 5001) Phone (08) 352 3428	President Secretary Treasurer	Bob Allan Maurie Hooper Bill Wardrop	VK5BJA VK5EA VK5AWM	1820 kHz 3.550 MHz, 7.095, 14.175, 28.470, 53.100, 147.000 FM(R) Adelaide, 146.700 FM(R) Mid North, 146.900 FM(R) South East, ATV Ch 34 579.000 Adelaide, ATV 444.250 Mid North Barossa Valley 146.825, 438.425 (NT) 3.555m 146.5000, 0900 hrs Sunday	(F) (G) (S) (X)	$70.00 $56.00 $42.00
VK6	West Australian Division PO Box 10 West Perth WA 6872 Phone (09) 388 3888	President Secretary Treasurer	Cliff Bastin Ray Spargo Bruce Hedland-Thomas	VK6LZ VK6RR VK6OO	146.700 FM(R) Perth, at 0930 hrs Sunday, relayed on 3.560, 7.075, 14.115, 14.175, 21.185, 28.345, 50.150, 438.525 MHz. Country relays 3.582, 147.350(R) Busselton 146.900(R) Mt William (Bunbury) 147.225(R), 147.250(R) Mt Saddleback 146.725(R) Albany 146.825(R) Mt Barker broadcast repeated on 146.700 at 1900 hrs.	(F) (G) (S) (X)	$60.75 $48.60 $32.75
VK7	Tasmanian Division 148 Derwent Avenue Lindisfarne TAS 7015 Phone (002) 43 8435	President Secretary Treasurer	Andrew Dixon Ted Beard Peter King	VK7GL VK7EB VK7ZPK	146.700 MHz FM (VK7RHT) at 0930 hrs Sunday relayed on 147.000 (VK7RAA), 146.750 (VK7RNW), 3.570, 7.090, 14.130, 52.100, 144.150 (Hobart) Repeated Tues 3.590 at 1930 hrs	(F) (G) (S) (X)	$69.00 $55.65 $40.00
VK8	(Northern Territory is part of the VK5 Division and relays broadcasts from VK5 as shown received on 14 or 28 MHz).						

Note: All times are local. All frequencies MHz.

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A Russian Military Aircraft Radio

*Colin MacKinnon VK2DYM * gives an interesting insight to old military aircraft radios.*

Older readers and collectors of military history will know of the English TR-5043 VHF aircraft transceiver, which was adapted by the US military as the SCR-522, and was used extensively by the allies in the latter stages of WW2 and up to the 1950s, in Spitfires, Mustangs and other aircraft of that vintage. After the war many amateurs modified the sets for two metres and it provided a cheap entry to that band. See Photo No 1, a top view of a 522 with the lid removed.

The TR-5043/SCR-522 was a 4 channel crystal controlled, amplitude modulated transmitter and receiver, covering the 100-156 MHz range and operated remotely via a 4 button switch. The power output was less than 10 watts (from 320 watts input!). The transmitter and receiver were separate units which fitted side-by-side into a metal case, whilst the channel change and tuning actuator mechanism fitted into the case on top of them. The channel change mechanism was electromechanical with a uni-selector relay which selected the required crystal and moved four metal slides to retune the receiver input and transmitter output circuits. The transmitter has four tuned circuits whilst the receiver has two. Before each mission the correct crystals were fitted and the set was

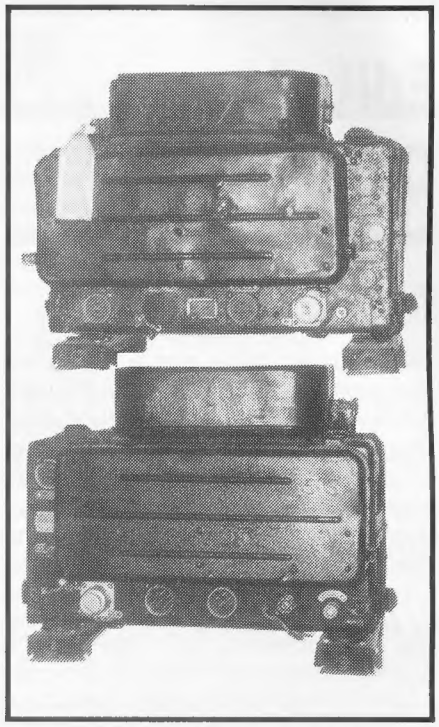

Photo 2: Front view of Russian radio. Transmitter "A" at top, Receiver "B" below.

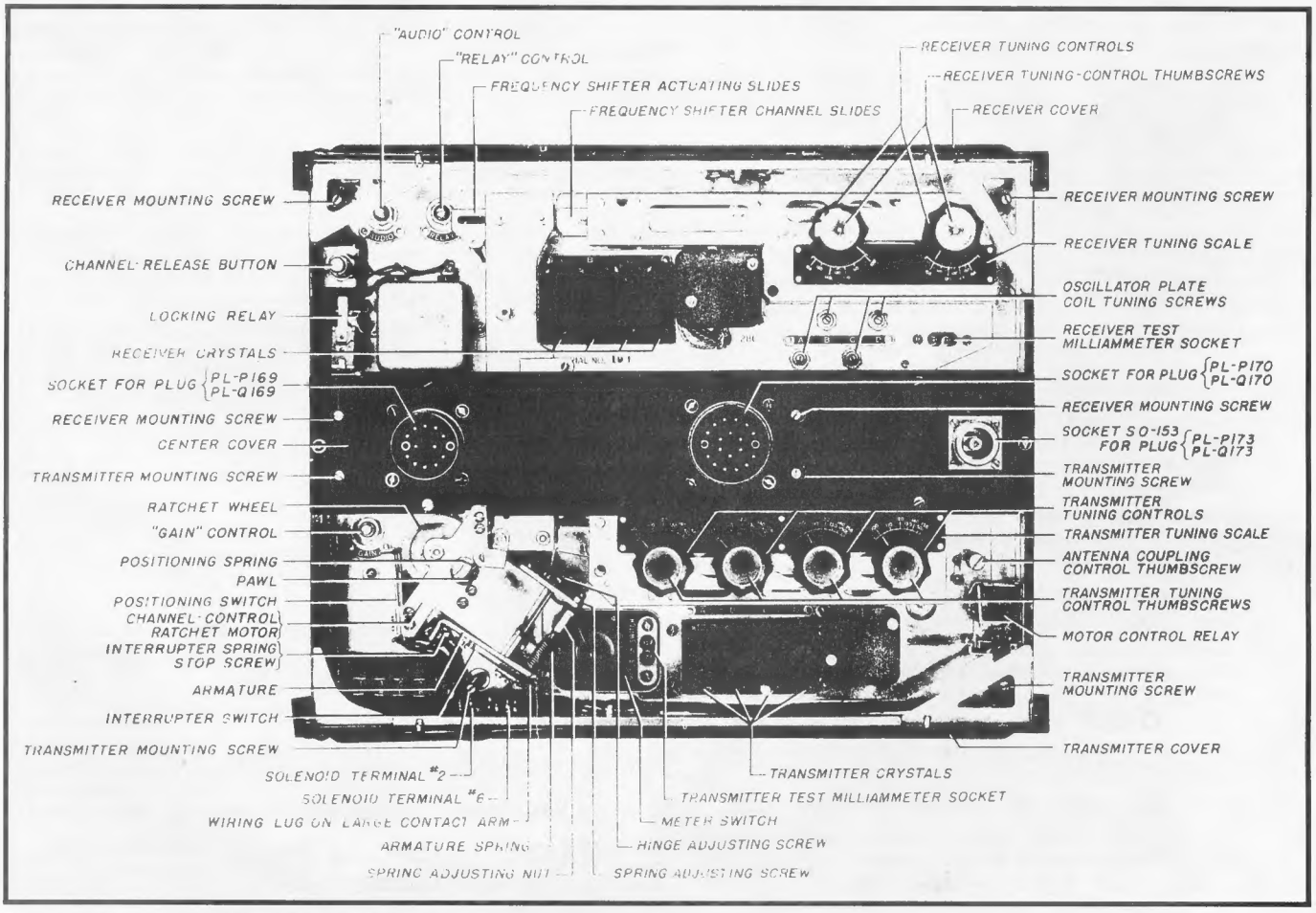

Photo 1: Top View of SCR-522 with lid removed.

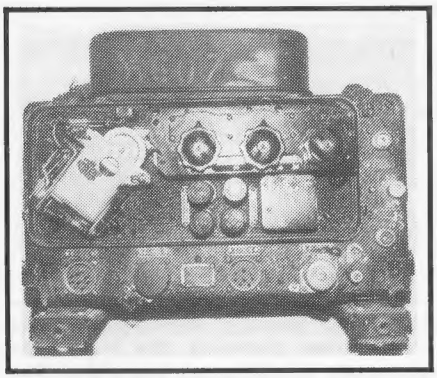

Photo 3: Front view of Transmitter with cover removed.

pre-tuned for each channel. The separate power supply was a very heavy (19 kg genemotor in a metal case with filters etc. Most sets had a 28 volt input, although 14 volt versions were made.

Recently a Russian version of the SCR-522 was obtained from a Polish made MiG-15 fighter aircraft and it is interesting to compare the two. Electrically the set is very similar to the 522 but with Russian valves and electrical components. However, the channel change mechanism and many other components are obviously American made! The explanation for this is that during the war, the US supplied the Russians with large quantities of equipment

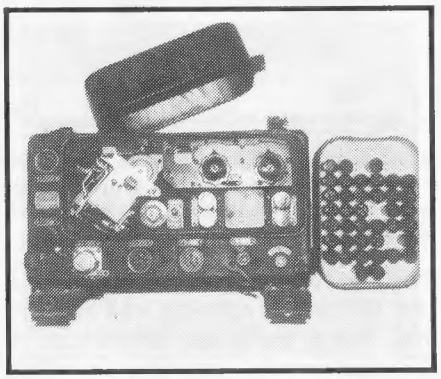

Photo 4: Front view of Receiver showing box of crystals at right.

and materials and that must have included the components of the SCR-522, which they have built into a modified version of the US set.

The Russian radio consists of three separate boxes, a transmitter unit "A" and a receiver unit "B" as shown in Photo No 2, plus a vibrator type power supply unit "C". Whereas the SCR-522 was only fitted with four sets of crystals as needed, the Russian set

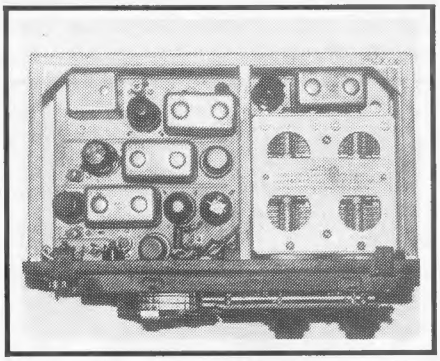

Photo 5: Top view inside Receiver. The tuning units at the right are of US manufacture.

has a metal box with a hinged lid attached to the top of each unit, containing a full complement of crystals. The crystals are fitted inside cylindrical holders marked "A" for the transmitter and "B" for receiver with the channel number marked. The electrical connectors are different to the US type and all nameplates are in Polish. The mounting brackets

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underneath the Russian set are also not to US and British standard. The construction is quite good, but the cases are of lighter construction than the 522 and exhibit a few dents from mishandling.

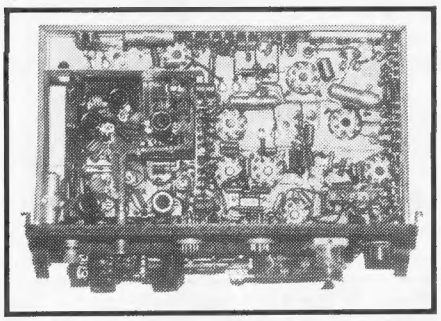


Photo 6: Underneath view of Receiver. The neat wiring is similar to US methods. Components have English markings.

Photo No 3 shows the Transmitter with the front cover removed so that the channel change and tuning mechanism can be compared with the 522. This transmitter only has three tuning adjustments whereas the 522 has four. Just below the three tuning dials you can see the four cylindrical crystals. The receiver in Photo No 4 has its own channel changer/tuning slide, again a 522 component, and it has the same volume and relay controls as the American radio. The box of crystals for it is shown on the right. The internal photos, No 5 and 6 (receiver) and 7 and 8 (transmitter), show the neat construction of both, with valves ("lampy" in Polish), component designations and values all in English. There are obvious differences in part location and component dimensions but the similarities are such that radio technicians who worked on the 522 set would feel right at home with this gear.

The Russian set appears to have a similar output power to the 522, but the power supply is a marked contrast to the heavy US set, in that it is a vibrator type unit, weighing only around 10 kg. I haven't included a photo because it is just a small black box.

The MiG-15 and its later, faster development, the MiG-17, carried this VHF radio as well as a low frequency Direction Finding radio which is based on the Bendix MN-26 radio

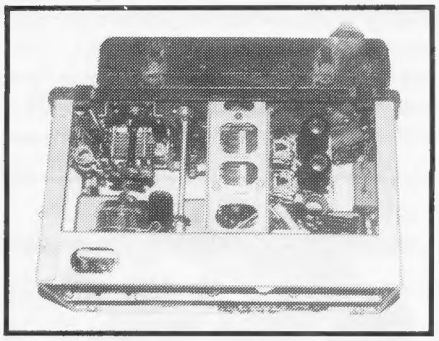


Photo 7: Top view inside Transmitter, with the 832 equivalent final output visible at lower left.

made in the US commencing in the late 1930s and running well into the 40s. There are a few differences in construction technique and the Polish wording indicates its origin but it is otherwise almost an exact copy of the MN-26. Whereas the VHF radio does not comply with current air communications standards and has been replaced, the MN-26 radio performs better than modern solid state models so has been retained in the aircraft.

Another interesting comparison is the engine of the MiG-15 which is a copy of the Rolls Royce Nene jet engine. The English Government sold 25 Nenes to the Russians in 1946 and the design was promptly copied (illegally) and improved. When working on the MiG engine the English Rolls Royce manuals proved very adequate for the purpose!

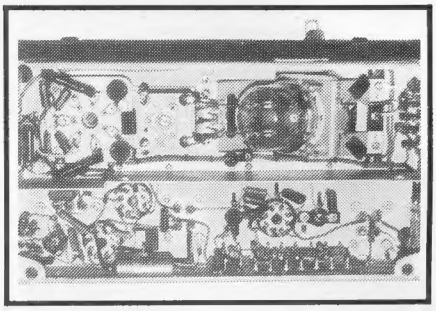


Photo 8: Bottom view inside the Transmitter showing the 832 type harmonic amplifier at top right. The socket for the final output valve is on the top left.

The MiG-15 first flew in 1947 and several thousand were made in various variants with many still in service. The Polish made aircraft were mostly two seat trainer MiG-15 UTI models, called the LIM-3 in Poland. It has a wing span and length of 10 metres, and a top speed of 1000 km/hr, with armament of a single 23 mm cannon. The MiG-15 gave the United Nations forces in Korea a rude shock as it was superior to the allied aircraft including the F-86 Sabre jet, but fortunately the Chinese pilots were poorly trained and inexperienced.

Today I can sell you an airworthy MiG-15 for only $500,000, so please form a queue!

* *52 Mills Road, Glenhaven NSW 2156*

ar

WIA News

Appreciation for WICEN

The acting Chief Commissioner from Victoria Police, Robert Falconer, has written to WICEN (Victoria) Inc, expressing appreciation for their work during the floods last year in Northern Victoria.

The acting Chief Commissioner said, *"I write to express both the Police Force's and my personal gratitude for the excellent work done by WICEN members..."*

He went on to say, *"...WICEN members provided valuable assistance in the data transfer of registration information.*

"The effort by WICEN volunteers, and the fact that they are volunteers who provide their own time and resources, is to be highly commended as in such circumstances it would have been extremely difficult to complete the registration of evacuees by any other method.

"...be assured that WICEN will continue to have a vital role in emergency response communications within Victoria."

WICEN (Victoria) can take a well-deserved pat on the back.

Amateur Radio on a Budget — Part 1

"Doc" Wescombe-Down VK5HP/VK4CMY explains how low cost amateur radio can be enjoyed.*

"$ $ $ $ $ $!" reads the welcome ticket to any new amateur in 1994 (or, as in the author's case, an operator returning to the hobby after a protracted absence). If you have the budget allocation or credit availability to purchase new equipment, then you need read no further. But amateur radio is a hobby to some of us, neither an obsession nor a way of life. It is to these mere mortals that this article is directed.

Each amateur (or is it "amateur's household"?) will determine the $ limit in establishing and updating the home station. In my own case, having many years of no work, or only part time work during mature age studies, as well as some of life's cruel twists, this meant relying heavily on club station equipment. Thank you both to South Coast Amateur Radio Club, Adelaide, of which I was co-founder in 1974, and the Whyalla Amateur Radio Club in country South Australia.

It was during these years (1978-90) of adversity that I learned both humility and "making-do" - or was it recycling? Colleagues such as Drew VK3XU, Paul VK5TT, Andy VK5AAQ, Steve ex VK4LG, Bob VK4KNH, Andrew VK2AAK, Freda VK2SU, Robby VK4YV, Peter VK5BWI and the many others who responded to "wanted to buy" advertisements, have all contributed to my successful "comeback" to amateur radio.

In 1974-75 I built my first station from the ARRL books "Understanding Amateur Radio" and "How to become a Radio Amateur". Nowadays, deteriorating eyesight and lack of mains power/workshop facilities has restricted homebrewing to HF aerials, ATUs, RF switching, masts and the like. Andy VK5AAQ has been my eyes and hands for other projects.

By advertising for older used radio parts and equipment on a club basis, a number of people in similar situations have been helped into and within the hobby. For example one operator donated an FT200 and power supply; another amateur sold us an RCA AR88 RX (early 1940s) for $100, a Yaesu FT101B txcvr 1972 for $100, a Yaesu FT100 txcvr 1966 for $20, a Hallicrafters 2x813 linear for $80 and "threw in" a Kenwood TS520 with VFO 1974 for free. From a deceased estate came a Drake L4B, TR4C, T4X and R4C for $1100. Other responses resulted in a mint Heathkit SB201 for $400; FLDX 2000 for $80; BC779 "Super Pro" RX, BC348 RX (both 1940s), 3BZ TX, RF and AF signal generators, 400 valves, homebrew 100 w TX with Geloso VFO, six vintage mantel radios 1925-1951, various power supplies, Bird 43 wattmeter, slugs and dummy load, transformers, ARRL handbooks and radio magazines back to 1930 all for $400; another was the donation of a QRP Heathkit HW-8.

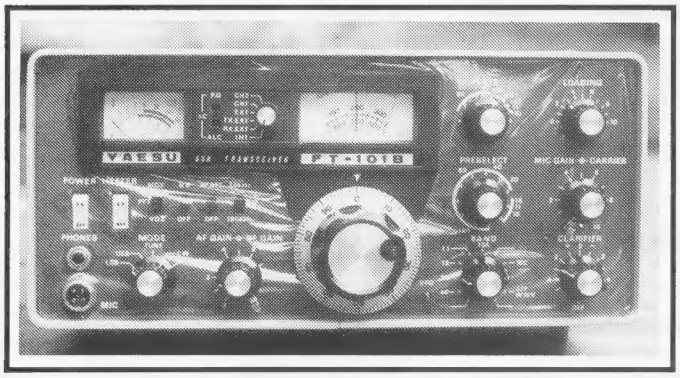
Obviously a variety of people benefit from these acquisitions — restorer/collectors of vintage equipment helped pay for the "job lots" and SWLs/new amateurs can get on air very economically. Other amateurs have assisted with photocopies of schematics and manuals as well as donations or cheap sales of various components.

From my own perspective, valve equipment is preferred and US-made in particular (Heathkit, Swan, Ten-Tec, Hallicrafters) although British-made receivers (Eddystone EA12 and Racal RA17) are also favourites. As my service training was valve-centred and I know little about solid state and computers, I am comfortable with this approach.

For years though, I used a Ten Tec "Argonaut" 509 QRP rig and Heathkit HW7 QRP transceiver to notch up more than 10,000 QSOs on CW. It is only in the last 12 months that a transition to some phone operation has been made.

Enough about the situation here. How about you? Where do you start looking and for what do you look?

Other amateurs are the best start point. Let the word spread that you only have $100, $300 or $600, etc to spend and be patient. The cheaper gear is out there, cluttering up people's shacks, sheds and wireless offices. Make yourself known to local council tip operators, broadcast and TV station engineers, run advertisements in "Trading Post", AR,



etc. But saturate the enquiries — don't just run one advertisement. Buying and selling is all timing. Haggling is a matter of personal judgment and all kind of surprises may result.

For example, one respondent to an advertisement said he had a Heathkit SB200 linear for $X. Haggling, based on the perceived age of the unit versus the availability of "Ameritron" units new for $1400 saw an agreed price (sight unseen) of $X-200. When the unit arrived, it was not an SB200 but an SB201, in mint condition and perhaps 5 years old!

Job lot or shack clearouts can result in other bargains. One operator had a complete utility (and cab) load of valve-era equipment and parts which he wanted disposed of in one sale. He had contacted a state WIA Division and various electronics magazines in previous attempts to sell it all but had received no responses. A few judicious telephone calls to various "collector" amateurs in a couple of states and the $400 necessary was in hand and paid. In appreciation, the seller gave a complete Bird 43 Wattmeter outfit as an agent's "bonus".

Hamfests are another great source of goodies. "Caveat Emptor", or "Buyer Beware", always applies but purchasing leverage can be applied if the unit is being purchased untested. By way of examples, a well-made solid state 35 amp power supply (no metering and an unfashionable metal case) sat all day at an amateur flea market probably because it had "48V" scribbled in felt-tip on a switch. The vendor did not want to carry it home (25 kg) and accepted a $30 offer. Guess what? Yep — 13.8 volts @ 35 amps not 48 volts!! A huge 1750-0-1750 transformer went for $20 because it was on the floor too heavy to lift on to the trestle table) and everyone was overlooking it.

Everyone has their own economic values, but I guess my years of economic adversity (plus an unsympathetic YL!) have resulted in the formula that as a hobby, my amateur station will never cost more than a fortnight's net salary. That is also why I hand write my articles and three books (thus far) because I will not be able to afford a computer. Quality of life is more important to us than any piece of amateur gear so our 26 acre "High Country" land, new house and various livestock "pets" take primary focus. No rigs running all the time. No 2 m chatback. No packet. 80-40-20-15 m QRP and QRO CW (with a little bit of phone for old friends VK5AAQ and VK5TT) will keep me happy and within budget. Whatever you spend on your hobby, remember two things:

1. Old watts are as good as new watts; and
2. You won't be able to take it with you no matter how much you paid for it.

*C/o PO Dalveen QLD 4374

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WIA News

New WIA Members

The WIA bids a warm welcome to the following new members who were entered into the WIA Membership Register during the month of March 1994

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L30883 MR W KESSLER
L30884 MR G DUMARESQ
L40333 MR J M NOUD
L60334 MR K J RAY
VK2BDK MR S J SOARS
VK2DGV MR H J SCHUMACHER
VK2FEX MR J M BOGDANSKI
VK2FNP MR N A PRATT
VK2GA MR F DELIA
VK2GEO MR P TEVAH
VK2GO MR R SWALLOW
VK2GZO MR R EDWARDS
VK2JOE MR J FREEDMAN
VK2KDG MR D G H BUTLER
VK2KVD MR J R ORGAN
VK2KVK MR B S ROZEMA
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VK2MNZ MR H G HUGHES
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VK3ABO MR H P PETRODASKALAKIS
VK3DJO MR J WEEMAES
VK3KCM MR I MCLEAN
VK3MGU MR H C MATTHIES
VK3MHJ MR R LEKIC
VK3MKE MR W E MAYELL
VK3NSS MR S SIMPSON
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VK3US MR R CLARKSON
VK3XLD MR D LEARMONTH
VK4CTG MR N COLYER
VK4DAE MR D A EDEY
VK4EET MR E W R DE YOUNG
VK4EMM MR J E LOFTUS
VK6JAQ MR M L GERVASE
VK6NSL MR C D SELL
VK7NN MR D A HOPPER
VK7YME MR G M CUTHBERT

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The Joy of Kit Building

Alex Edmonds VK3BQN has also encountered some of the sorrows.*

Sometime between the time they first tear the controls off the television as children, and the time they throw the soldering iron through the window screaming "die you bastard", most people with a strong interest in electronics will attempt to build something known as a "kit". The idea of the kit is very simple.

You buy a box or bag that has all the components you need, clear and detailed instructions, and you can experience the joy of building something for yourself and making it work.

This is the theory.

In practice, there are a few minor problems that may be experienced.

What you must remember is that if there were no problems, any idiot could do it. In order to provide you with satisfaction for achieving something there must be a real CHALLENGE to be met. For this reason, the kit manufacturers and designers include certain little "errors" for you to overcome, and therefore increase your pleasure in your final success.

Components

First, there are the wrong components. Sometime between the original release and the time you bought the kit, one (or more) of the original components will have gone off the market. In order to make up for this, the kit manufacturer will have supplied an "equivalent" component. This does not include items such as diodes or transistors, where the "equivalent" is the same size and shape as the original, and where a nice note will explain to you why there is a difference. This refers to resistors, capacitors, switches etc, where you will be given no warning that any substitution has been made.

It is easy to determine which is the "equivalent" component.

It is the one which will not, under any circumstances, fit on to the circuit board.

I have built five kits. Every one included at least one component that physically could not fit on to the board as supplied. The one involving the 12 position switch where the mounting holes were all 5 mm too widely spaced caused the most violent reactions. Since the board was supposed to be fixed to the case by the switch mounting, it did, however, cause some amusement.

If it is simply a matter of the leads being too short to reach both of the mounting holes at once, you end up simply adding wire to the leads, or possibly even drilling new mounting holes. If the problem is that the component is several sizes too large to actually fit in the space left by the components surrounding it, it may simply end up hanging on long wires.

In extreme cases, the "equivalent" may be hurled violently across the room, after having been smashed flat with a hammer, leaving you to dig through your stock of components for something that will actually fit on the board. The other point of interest from "equivalent" components is the strong tendency to supply components of different values from those that are specified in the instructions and circuit diagrams.

This may not matter much in the case of slight changes in some resistors or decoupling capacitors, but I am wondering about what effect the substitution of 27 pF capacitors for all the specified 22 pF capacitors in the tuned circuits of my 1296 MHz kit will have.

Components that are simply "missing" are less common, although the plastic box that one of my kits is built into is held together with insulating tape, due to the fact that, while the kit included the box, it didn't include the screws to hold the box together. It did, however, include

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a number of other screws and washers that had nothing to do with the case, and that were included for some reason that I have never been able to discover.

Instructions

Secondly, you must deal with the instructions.

These may be far more imaginative than merely supplying the wrong components.

These may include requirements that are physically impossible.

For example, they may require you to wind more windings on to a toroid than can actually be done, due to the fact that when 2/3 of the specified number of turns of the specified wire are wound on, there is no longer any space to push the wire through.

This makes you actually THINK about what you are doing, instead of mindlessly following the instructions, and leads to hours of fun trying to work out what to do.

You must also be prepared for:

1) placement diagrams that show electrolytic capacitors fitted backwards,
2) instruction sheets that refer to components that don't exist; and
3) instruction sheets that refer to two different components by the same designation.

Serious, determined study of the circuit will, eventually, enable you to determine (probably) what the instructions mean, and where all the bits go.

In each case, instead of expecting you to act like a mindless robot blindly following instructions, they want you to study the circuit, to learn how it works, to expand your mind. Isn't that nice of them?

Construction

The next thing to remember is to be very careful in mounting and soldering components.

Proper techniques increase the chances of your success. They also reduce the risk of damaging any components. This is important since it is virtually certain that nobody anywhere in your state will be able to supply replacements for any "unusual" IC used in the kit in anything under two months (if that). (For the purpose of this study, "unusual" ICs are defined as anything other than a 74 series logic circuit or a 741 Op-Amp.)

This teaches you the real importance of proper construction technique. After all, if you know you'll have to wait several weeks as a minimum before you can get a replacement, it will teach you to be careful with what you have. (This works under the same principle as the American defence department, whose suppliers selflessly and unstintingly cost individual washers at $50 or more each, thereby ensuring that people will take great care not to lose them.)

Of course, it is not just the kit manufacturers who are so marvellously encouraging. The component manufacturers and sales outlets also want you to expand your horizons.

As an example, anybody who has ever tried to mount a flanged BNC connector into a box will have discovered that the holes in the flange are tapped, in order to allow mounting using bolts or screws. Nobody in Australia sells the screws that would fit these mounting holes *(They are actually an American 3-56 thread, similar to, but a little finer than, a 7 BA. These also do not grow on trees! Ed).* The same goes for a vast number of switches with tapped mounting holes.

Think what this means. Now, if you want to use these components, instead of thoughtlessly using a simple screw, you are privileged to learn how to re-drill the holes, thereby adding a new skill to your dealings with small mechanical components.

Magazines, of course, are also a great help.

Just think, if they didn't tell you all about the wonderful new components available, you wouldn't spend all those weeks trying to track down somebody who sells them, all the time learning how to deal with people, and coming to terms with how small the Australian market really is in world terms, and how little interest the manufacturers have in selling components here.

Marketing

Foremost amongst those trying to teach you the true facts of life about the world we live in may, however, be the marketing branches of the manufacturers.

I well remember the Japanese company stand at an electronics exhibition some years ago, advertising a marvellous new computer memory chip that would soon be released for commercial use.

I remember how impressed I was by their advances in technology.

I remember how delighted I felt to hear the person manning the stand explain that there were no plans to sell any of the chips in Australia, but that the entire production run was to be used in that company's products manufactured in Japan.

I remember asking why on earth they were advertising the chip in that case.

I suppose it was to inspire admiration.

To make Australians aware of Japanese technology.

To teach us to live with the knowledge that you can't have everything you want in life.

To encourage us to learn to overcome frustration and rise above it.

To show that there is no sense of achievement in anything that requires no effort.

After all, imagine how boring it would be to be able to simply walk into a shop and buy the component you want. Where's the fun in that?

*PO Box 445 Blackburn VIC 3130

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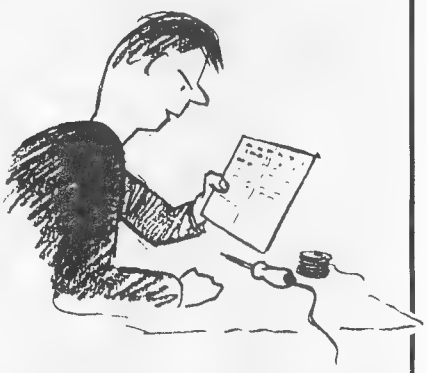

"Plug it in to the 240 volt mains socket and switch on. The sharp end gets hot. Hold it by the cold end. Look at the solder. It is like soft grey wire, and when you touch it with the hot end it melts. Now comes the tricky part . . .".
— VK3AUC.

Equipment Review ICOM IC-2GXAT

*Reviewed by Paul McMahon VK3DIP**

What is it?

The IC-2GXAT is a simple 2 metre handheld, offering 7 watts out (when used with the appropriate battery pack, and down to 3 watts with the standard pack provided) in a small package. The review set had a serial number of 01091.

First Impressions

The first thing to be noticed with the review IC-2GXAT came when opening the box. There is no foam, it is all cardboard. Environmentally friendly this may be, but for something as heavy for its size as this handheld, it makes the packaging basically non reusable. This was aptly illustrated in the case of the review set. It had obviously been to at least one other review before it got to me and, although the radio was in good condition, unfortunately the packaging was not. Enough on cardboard, on to the radio.

The IC-2GXAT is not the world's smallest handheld, yet it is still smaller than, say, the venerable IC-2A. It comes with a 240 V AC charger, "rubber ducky" antenna, BP-160 7.2 V 700 mAh nicad pack, a belt clip, a carry strap, and an instruction book. The top of the set has the standard BNC connector for the antenna, as well as the normal

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G039A

ICOM speaker/mic connector, the latter being normally covered by some rubber stoppers to keep the outside outside. Also on the top, and fitted with a rubber guard, is the power cum charging socket that ICOM seem to have standardised on. Don't expect to buy one of the matching plugs down at the corner store, but it did seem to make a good contact. The top is completed by one small button (Set) and two relatively large knobs, one of which is a concentric squelch/volume on/off type and the other a click/detent type frequency control.

The side of the set has four buttons — the expected PTT, plus a second function key for use with the keypad, a monitor button to temporarily unmute the set, or listen on the input of repeaters, and a panel light button for the LCD display.

The front of the set has a reasonable sized LCD display which features frequency, memory number, and an S meter cum power out indicator. Also on the front is a numeric touch pad, with three other buttons for such things as duplex, scan, and VFO or memory selection, completing the list of controls. All buttons are slightly recessed into the case, probably to help prevent accidental activation. Likewise all have solid feeling rubber covers. This radio was made to be used in less than ideal conditions.

The IC-2GXAT, as the name suggests, seems to have evolved from the IC-2GAT. It has the same output power, receive power save, splash resistance, scanning, monitor function, call channel, etc, of its forbear. The main differences are better styling (more curves, less square edges, bigger knobs), improved receive sensitivity (0.18 μV for 12 dB SINAD, vs 0.25 μV), more memories (40 vs 20), and smaller size (57 x 125 x 35 mm vs 65 x 151 x 35 mm).

The set feels comfortable in the hand and looks pleasing to the eye. The control arrangement is functional. While some actions require two hands, they don't require three, or small fingers. In fact you could probably do most of the basic functions whilst wearing gloves.

Technical Bits

Firstly, these are very hard to come by. The manual is of very little help with only some very sketchy specs hidden at the back, from which you can glean that the receiver is a dual conversion with the first IF at 21.7 MHz and the second IF at 455 kHz. In fact, the manual is no more than an instruction book, and one aimed at the technically, and radio, illiterate at that. The results here have thus been obtained by experimentation rather than recourse to any technical considerations of circuit or anything. I realise that some amateurs, maybe even many, couldn't care less about how their equipment works, or what's inside it, but I hope there are some out there, like myself, for whom this is one of the first things looked for on opening the manual on a new set. I do realise that a service manual is probably available (and companies supplying rigs for review please note it would be real nice if you were to include a copy with the review set) this usually has to be ordered with a suitable delay, and price. More on this later.

In the review set the frequency display would have you believe that the set is capable of receiving from 50 MHz to 204 MHz in 5 kHz steps. This is, of course, at odds with the manual and brochure which suggest that the frequency coverage is restricted to 144 MHz to 148 MHz for Australia. I should perhaps note at this point that the manual also was not quite right for the fast tune function (ie turning the frequency knob whilst holding down the function key) with a 10 MHz rate being available in addition to the 1 MHz and 100 kHz rate mentioned in the manual. The frequency could also be set using the front panel keyboard. However, in this case, only the last four digits could be entered. In fact, while the set does have a fairly wide band receiver it is not as wide as the display indicates. The review set would not receive below 136 MHz, and strange things happen at about 195 MHz (the dial frequency changes but the actual receive frequency doesn't appear to vary).

The sensitivity appears pretty good across this range with no dropping off towards the edges. The limits are probably decided more by the processor than any RF circuitry and at some stage someone will probably come up with some combinations of buttons to push while turning the power on to extend this further. As said, the sensitivity was within a dB or so at all measured spots across this range. If anything it actually seemed to improve as the frequency went higher, though this could have been a function of my test equipment. Anyway, the local Channel 7 TV picture and sound carrier could be received at full scale on the S meter, at the appropriate frequencies of course, with just the rubber ducky on, and in my semi underground shack. The audio quality of the TV sound, of course, left lots to be desired, but the local CFA was perfectly clear copy. The behaviour of the S meter appeared consistent across the band, with about 6 dB taking a signal from S1 to S5 and a further 6 dB providing full scale.

On transmit the set would not make a noise outside 144 MHz to 148 MHz, but it did at least give you some indication of this when you pressed the PTT, with the word OFF on the display. Audio quality was acceptable with the internal microphone, and quite good when using the speaker mic from an IC-2A. Output power was as expected at around 3 watts on high and 1 watt on low, and pretty constant across the band. Unfortunately, due to the ICOM standard power connector, or at least my lack of a suitable plug, I could not verify that the output power on high was indeed the 7 watts claimed, but I have no reason to doubt this.

On the subject of power supplies, as stated the supplied pack is the BP-160 which is a 7.2 V 700 mAh unit. With the supplied charger the recommended charging time is 15 hours. For this ICOM claim you will get around 4.5 hours use assuming a one minute TX, one minute RX, and an eight minute power saved RX duty cycle. ICOM claim that the battery pack is good for at least 300 with up to 500 charges if the recommendations given are followed. It is worth while having a thought about how this would suit your usage of a handheld, and perhaps purchase an additional battery pack.

Alternatives include:

- The BP-132A which is a 12 V 600 mAh unit which will give you the full 7 watts out but which, at the duty cycle above, is only good for 2.5 hours.
- The BP-157A which is a 7.2 V 900 mAh unit which is similar to the supplied unit but with a claimed 5.83 hours.
- The BP-130A which holds 6 standard AA cells which could also be nicads. The timings here of course depend on the batteries fitted.

Which of these will be best for you is dependent on how you use your handheld. I would, however, suggest you give serious consideration to the AA cell pack. About the only disadvantages to the nicad packs are the relatively poor shelf life, and high initial cost. These are normally not so important, however there can be situations where they are the deciding factors.

For example, I normally carry a handheld with me to work, yet only use it for about 10 minutes each day, if that. Under these circumstances a nicad pack is pretty useless. Basically you either charge it up each night, or when you reach for it, it is invariably flat. I carry an AA cell pack and a spare set of batteries for it and under these circumstances have only to change batteries once every two or three months, and am virtually guaranteed use of the handheld when I need it. Not to mention the fact that a quick charge is only as far away as the nearest 7-11, and you will get, as in the case of the IC-2GXAT, the full rated power out.

Operation

The instruction manual is 35 pages long with a small fold up "cheat sheet" to carry around with the set. Both explain in often painful step-by-step detail exactly how to do anything the radio is capable of. This goes down to the level of telling you how to transmit by pressing the press to talk switch, and how to return to receive by releasing the press to talk switch. In summary no one will have any excuses for not being able to figure out how to do something.

There do, however, seem to be a couple of minor slip-ups in the manual, such as in a couple of cases mentioning the set as an IC-2GAT, and saying some things like *press this button and three beeps may sound?* Anyway, a good test of how simple a set is to use is to just try to figure it out without reading the manual. In this case I could figure out how to switch it on, adjust volume and squelch, set the required frequency by turning the big knob, and I was on the air. If what you want is a simple to use set then this is it.

As has been mentioned before, on air audio quality, both transmit and receive, was quite acceptable, and the rig felt comfortable in the hand. Operation of the memories and scan functions did require recourse to the instructions. However, once one could see how it was done this also is very straight forward. The IC-2GXAT seems to have followed the trend towards a smaller number of function buttons, going more for the same button performing different functions depending on how long you hold it for. For example, pressing the low/high power button briefly toggles the power level between high and low. If, however, you hold this button down for some seconds the handheld goes into set mode.

Scanning was simple to set up. You put some frequencies into the two special program scan edge memories, press scan and off you go. By the way, the memories hold all required information about the frequency such as duplex, shift, tone frequency, etc and are useable across the entire displayed frequency range. There are 40 memories available and if, for some reason, this is too much for you, you can reduce the number via a set function. You can also use a set function to have the display read channel number instead of frequency for the ultimate in appliance operation.

Other useful features are the input frequency monitor, the power saved receive mode, and the timed dial light. The set also offers a couple of tone access and pager functions when used with a matching unit at the other end and, of course, with the appropriate optional extra modules. While these sound like a good idea I wish someone would put some effort into standardising these sort of features so that they could be used independently of the brand of the set you happened to own.

These features also fit in with a couple aimed at repeater usage, which are of limited usefulness in Australia. For example, the ability built in to scan for any sub audible tone would be very useful except, of course, most Australian repeaters do not use sub audible tones.

Conclusion

The IC-2GXAT is a solid handheld which is built to be a useable work horse unit. It performed well on all tests made, and the extended receive coverage is a real bonus. The emphasis in the manual is keep it simple. However, it does contain everything you need to know to operate the set. There are several useful additional features but none that I would say were unusual enough to really sway a purchase one way or the other.

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Technical Abstracts

Gil Sones VK3AUI

Ceramic Resonator VFO

Building a stable variable frequency oscillator for a project is often difficult. Crystal oscillators are fairly simple and if one of the cheap mass produced crystals can be used they are cheap to make. They cannot be moved very far in frequency which may be a disadvantage for rock bound QRP operation.

There is an alternative to the crystal with a similar range of frequencies to those available in the cheap mass production crystals. They are not quite as stable or as accurate but acceptable stability is achieveable and it is possible to pull the frequency over a greater range than the comparable crystals.

The design offers a 20 kHz tuning range around 3.58 MHz on 80 metres with quite acceptable stability.

Ian Braithwaite G4COL describes a VFO using a ceramic resonator in *Radio Communications* for February 1994. The design offers a 20 kHz tuning range around 3.58 MHz on 80 metres with quite acceptable stability. The ceramic resonator used is available in Australia at a modest price.

The supplier of the resonators is *RS Components Pty Ltd* who have outlets in all mainland states. VK1 is handled from VK2, VK7 from VK3, VK8 from VK5, and they will take phone credit card orders. Remember, however, that they are a trade house and you need to know what you want preferably with a stock code. They do carry a fascinating range of parts but find someone with a catalogue. A similar parts supplier is *Farnell* who is in Sydney.

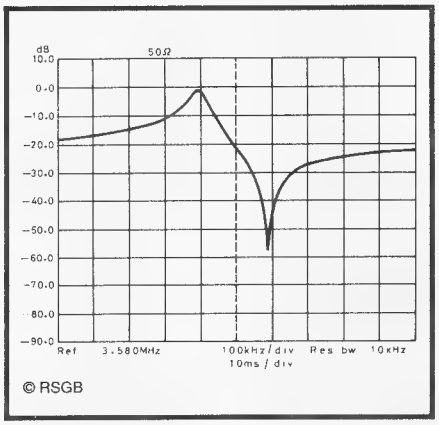

Figure 1 Frequency response of 3.58 MHz ceramic resonator.

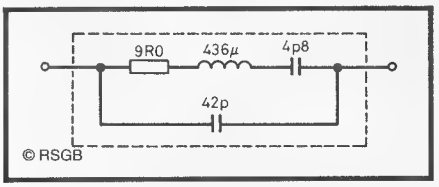

Figure 2 Equivalent circuit of 3.58 MHz ceramic resonator close to resonance.

The characteristic of a 3.58 MHz resonator is shown in Fig 1. This is similar to that for a crystal. The equivalent circuit of this resonator is shown in Fig 2. Whilst the Q is lower than a quartz crystal it is somewhat higher than an LC circuit.

The series resonance can be pulled higher by a series capacitor or the parallel resonance can be pulled lower with parallel capacitance. The oscillator circuit must be suited to the resonance you elect to use.

Temperature stability was found to be around 3 kHz for a temperature rise from 23°C to 50°C. So, rapid excursions of temperature should be avoided. However, adequate stability exists at a room temperature in the 20°C range.

The frequency scatter of several resonators tested by G4COL is given in Fig 3.

The circuit of the ceramic resonator VFO is given in Fig 4. The circuit uses a JFET oscillator with a transistor buffer and a 3 terminal voltage regulator. The circuit uses the voltage regulator to both stabilise the varicap voltage and the transistor base supply which regulates the drain of the JFET. The 78L08 may be difficult to obtain locally and an LM317 with

Figure 3 Scatter in frequency of seven 3.58 MHz Resonators.

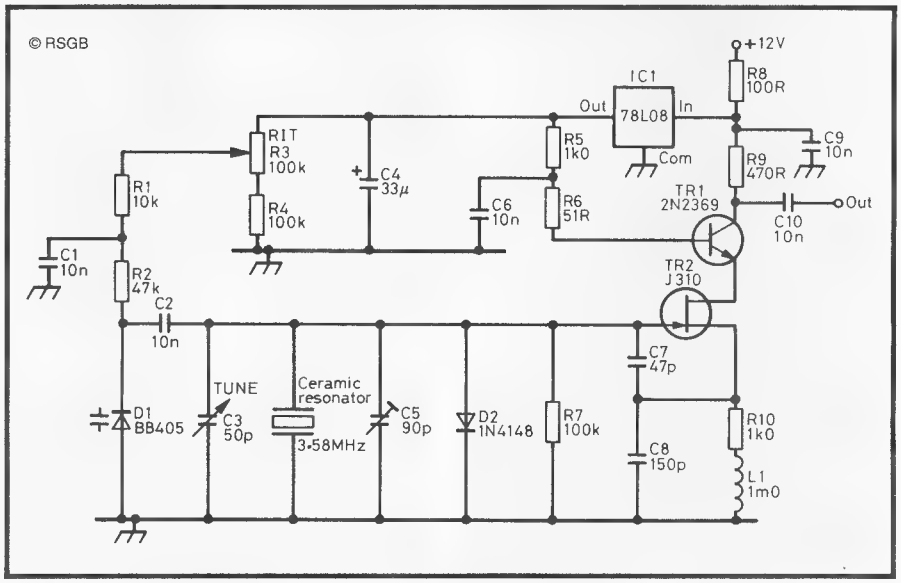

Figure 4 Circuit diagram of ceramic resonator VFO.

a couple of resistors could be substituted or, alternatively, there are circuits to use a 78L05 to regulate a higher voltage. The LM317 and the 78L05 circuits are in most data books.

Drift figures are given in Table 1

Elapsed time	Frequency (MHz)	Drift (Hz) from datum
0	3.550321	0
1 min	3.550306	-15
9 min	3.550302	-19
28 min	3.550314	- 7
3 hr 27 min	3.550350	+29
3 hr 58 min	3.550338	+17

Table 1 Drift figures for Ceramic Resonator Oscillator.

Frequency MHz	RS Stock Code
0.5	658-514
1	656-158
2	656-164
3.58	656-170
4	656-186
4.19	656-192
4.91	656-209
6	656-215
7.37	656-221
8	656-237
10	656-243
11	656-259
12	656-265

Table 2 Ceramic Resonator Stock Codes at RS Components

and the stock numbers of resonators are given in Table 2.

Triband Dipole

A simple triband dipole was described in the Swiss magazine *Old Man* for February 1994 by Robert Kägi HB9KL. The dipole consists of parallel 80 and 40 metre dipoles with 15 metre operation using the 40 metre dipole as three half waves.

Of interest is the shortening of the 80 metre dipole by folding back the ends. Some adjustment of the length would be required in VK as our band is different. The 80 metre section being resonated at 3.7 MHz would require some extra length to lower the frequency for local use.

The spacers used were plastic and some care would be needed to select a plastic which is not too badly affected by ultra violet light. An alternative would be to use dowel or canes, possibly with plastic insulator tips. The pipes used in garden watering systems may provide suitable materials.

The antenna was built with 400 mm spacers. The centre was supported 10 metres off the ground and it was hung as an inverted Vee with an included angle of 115 degrees. This means the ends were approximately 2 metres off the ground.

The total length of the 80 metre section was 42.48 metres for a frequency of 3.7 MHz. The length of the 40 metre section was 20.18 metres for a frequency of 7.05 MHz.

To adjust lower in the band lengthen the 80 metre section by around 2 metres and prune to get a suitable resonance point in our band. This will only be around a metre overall as the ends are folded.

A bandwidth of 142 kHz was obtained on 80 metres and a bandwidth of 255 kHz on 40 metres. The bandwidths on both bands were for an SWR of 2:1. At resonance an SWR of 1.05 was obtained at 3.7 MHz and an SWR of 1.1 was obtained at 7.05 MHz. A 1:1 balun was used at the feed point and one of the Current Balun designs using ferrite beads would be suitable.

Figures were not given for 15 metres but the bandwidth should be reasonable. Some compromise may be needed between the 40 metre centre frequency and the 15 metre centre frequency but this should be fairly easy.

The antenna is shown in Fig 5.

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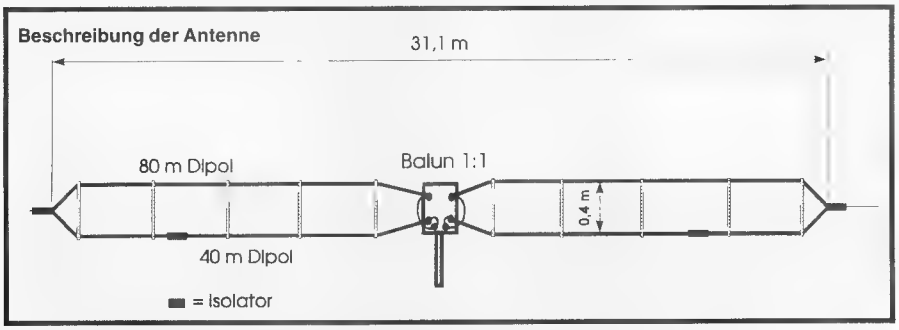

Figure 5 Triband Dipole.

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Some user comments: "Golly I am impressed... Over the Moon" "I have a number of logs and *Ham Log* is on the hard disk to stay!" "It is without doubt the best Log I have ever used — you have covered everything — a breeze to use" "A super program and Australian" "Thanks for the excellent back-up service" An FK8 wrote to the magazine ***Megahertz:*** "My job — programmer of 14 years... I've acquired 10 log programs without ever making use of them until I purchased *Ham Log*. It has maximum ease of use whilst keeping a rare functional richness... perfect statistics, listings and rare tools — torture it: one use will make you appreciate its flexibility." VK6PY, VK4VHP, VK5QB, FK8GV.

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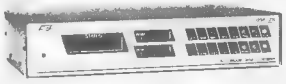

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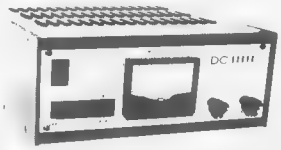

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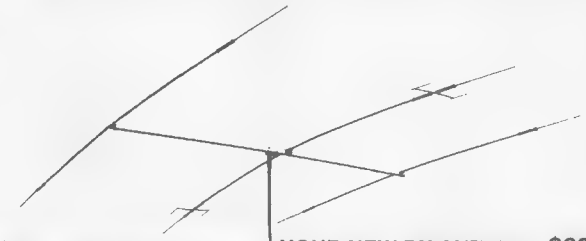

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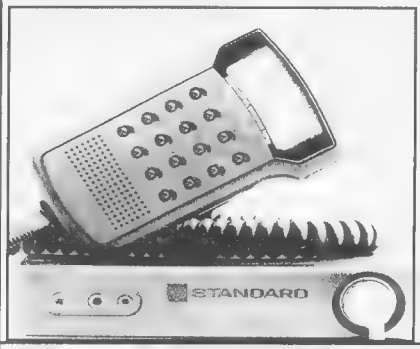

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Inductance Measuring Made Simple

Translation from "Radio Rivista" March 1993 by George Cranby VK3GI

This little device provides inductance measurements from 0.5 μH to 1.0 mH. It works with voltages ranging from 9 to 15 volts. To find the frequency of oscillation it requires either a digital frequency meter or a wide band receiver (400 kHz — 20 MHz). The value of inductance is then calculated using the formula L = 25340/F²C; where L is in μH, F is in MHz and C is in pF.

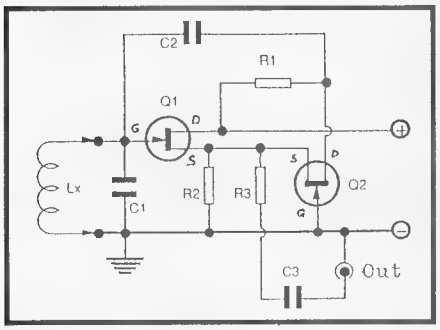

Fig 1 Circuit diagram.

The circuit uses a Butler oscillator comprising two FETs, Q1 and Q2. It operates by connecting C2 between the gate of Q1 and the drain of Q2. Q2 also acts as a buffer by connecting its gate to earth.

This, together with the fact that signal is picked up at low impedance from the source circuit, makes it possible for the oscillator to be connected directly to low impedance loads without the need for additional amplifier or buffer stages. Also, there will be no significant drop in output or frequency stability.

The Butler oscillator is noted for its frequency stability, comparable to that of a crystal oscillator. It can work over a wide range of supply voltage without affecting its output. With the given component values, it covers from less than 400 kHz to about 150 MHz. This depends on the inductance value put in parallel with C1, the fixed tuning capacitor. The signal is not perfectly sinusoidal but it is not being used as a VFO.

It is important that C1 is an NPO type, and the connection between the test coil and the input to C1 be kept as short as possible. The circuit board should be placed in a metal box and the earth plane of the PCB connected to the box.

The coil under test is connected to the tester and the frequency read on a counter or receiver. Then the inductance can be determined from the table or from the formula provided.

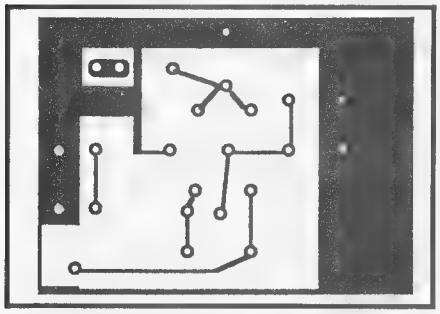

Fig 2 Circuit board.

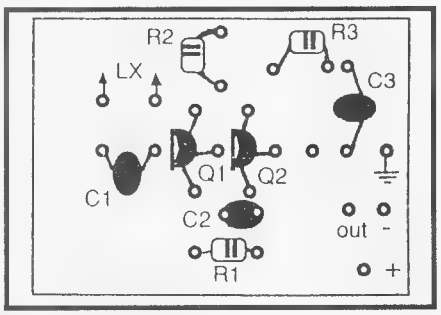

Fig 3 Board parts layout.

Parts list

R1 10k 1/4 watt 5%
R2 560 1/4 watt 5%
R3 1k 1/4 watt 5%
C1 150 pF NPO ceramic
C2 33 pF ceramic
C3 4700 pF ceramic
Q1, Q2 2N3819 or equivalent.
Metal box
BNC panel connector

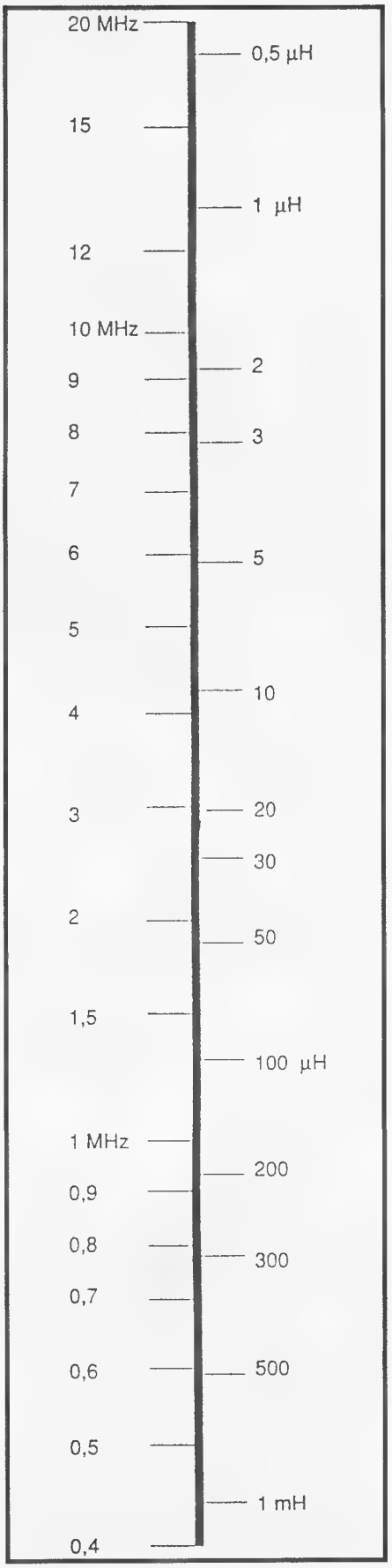

Table 1

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Japanese Encounter

Brian Ward VK2WBJ passes on some interesting information about an amateur radio event.*

This is an extract from the "Pitcairn Miscellany". I thought it may be of some interest to *Amateur Radio* readers, who may have heard Nob and Hiro on air. As Nob claims 31,000 QSOs while on Pitcairn Island, surely there must be some VK's in there! Nob's callsign was VR6JJ and Hiro's VR6BB (QSL via JF2KOZ).

The "Pitcairn Miscellany" is a local news sheet produced by the school teacher with the help of his pupils and raises a small amount of money for the school.

The following article is written by Nob Ichino who, together with Hiro, are the first indigenous Japanese to land on Pitcairn. They arrived on the Melbourne Star in January 1993 to spend four months on the Island. Both are ham radio enthusiasts. While here, they earned the respect of the Islanders because they adapted so well to a culture very foreign to them. I leave Nob's transcript unedited because his English is delightful and adds dimension to his personality.

I wonder when I have known Pitcairn Island? Surely when I had contact with Betty VR6YL in '86. As soon as I finished contact, I looked for it on the map. "Wow, further 7000 miles away from Japan! Any transportation to go.....?"

Sever years later, early morning January 11th '93, we've arrived at the Island at last. Looking from ship it gave me a very ghostly impression because some parts was covered by clouds. That was never forgetable.

When ships are stopping I am so excited as well as Islanders. (I had never thought I saw some ships here.) To see people was lot of fun. When I saw a few Japanese passengers, I was really surprised. They were surprised more than I. They've never thought Japanese get on board from Pitcairn. I spent a great time with them.

Ham radio from Pitcairn has always been fun. Hiro and I've made 31,000 contacts and we've made some records. We will show them some photos of Pitcairn Island with our QSL cards.

I don't know when I come here next. However I really wish to come back 10 years later to see difference how kids grown and so forth.

Arigatou everyone! Sayonara Pitcairn.

Thank you, Nob and Hiro, too.

*23 Bass St Caringbah NSW 2229

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Help stamp out stolen equipment — always include the serial number of your equipment in your Hamad.

A Compact Shack

Fred Boorman VK4ZU solves the problem of space and tidiness with his "shack"*

I have just read the Federal President's QSP, about the interior appearance of many "shacks", in the September issue of *Amateur Radio* magazine. I was never the tidiest person in the house but I always considered my shack reasonable until a serious illness changed my life style and we had to move from our house to a smaller unit.

The unit consisted of two large rooms and no provision for a radio. Many hours of thought and months of work later and the problem was solved. I now operate from my "new shack". The "shack" is not yet finished but has developed into an ongoing job.

The lower shelves, two either side, are on a roller for ease of access. The cupboards below the operating table are for power supplies and books.

The whole unit closes up and then occupies a space 4 1/2 feet long and the same height. It stands 2 feet out from the wall and is on castors for ease of movement. This may help solve a problem for some other ham.

*PO Box 654 Caboolture QLD 4510

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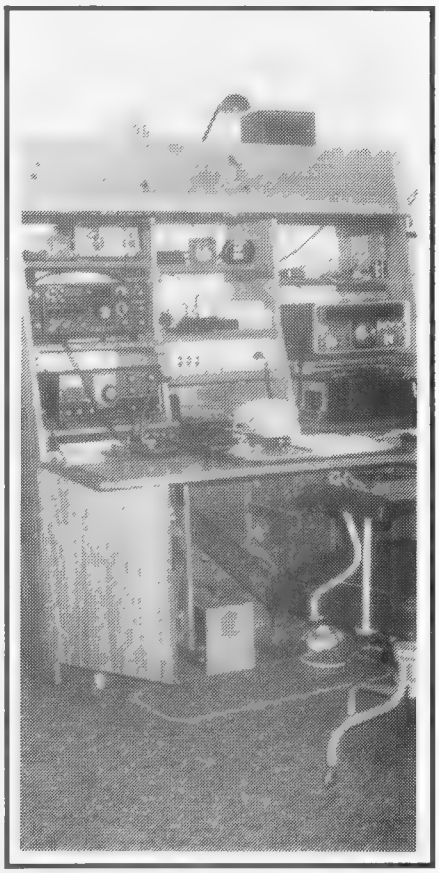

ALARA

*Robyn Gladwin VK3ENX**

Award Pennant

Bron Brown VK3DYF, ALARA Secretary, recently received, on behalf of our Association, a Pennant from the Air Forces Amateur Radio Net. The Pennant is quite easy to "earn". It only takes two contacts on one of their Nets to qualify for this award. The Nets are held on Tuesdays at 1000 UTC on 3.567 MHz and 1030 UTC on 3.610 MHz and then again on Fridays at 0600 UTC on 3.605 MHz and at 0630 UTC on 7.085 MHz. So, enjoy two contacts and send an extract of your log, with $5, to the Awards Manager, L J Brines VK2LEN, 26 Pozieres Avenue, Umina NSW 2257. This lovely blue pennant would be an attractive addition to any radio shack wall.

Visit of YLRL President

Dr Christine Haycock WB2YBA has recently visited Australia. She is an ALARA member, sponsored since 1979 by Mavis Stafford VK3KS, beside whose rig she is pictured. Dr Haycock is the founder of the Young Ladies Radio League, the US equivalent of ALARA, and is, at present, its President for the second time. She has led an interesting life. She has received many awards for her skill as a surgeon and is now Professor Emeritus of Surgery at the UMDNJ New Jersey Medical School in Newark. In her leisure hours, as well as her interest in amateur radio, she breeds miniature Schnauzer dogs for shows and is a keen photographer and photographic competition judge. Dr Haycock is also a member of the WIA.

ALARA Net

Our Net continues to have a good attendance each week and all are welcome to listen if not able to participate on air. The Net is held on Mondays at 1030 UTC on 3.580 MHz and much news is shared. Last week we learned that Alma Wills ZL1WA, a DX member, had been in hospital for an operation. Alma came to Castlemaine last year and we wish her a speedy recovery. Another news item on the Net was the success of Helen Cunningham VK7HJ, who has received her full call amateur radio licence at age 15. She has been encouraged by her father, Kirby VK7KC, and we hope she will be interested in joining ALARA.

Owing to family commitments, this will be the last time I write this column as Publicity Officer. However, I will still be involved with the Association. I would like to end with another of the clever cartoons produced by our Newsletter Editor, Dorothy Bishop VK2DDB. This time she has also included an appropriate comment on the Net.

It's my turn on the rig now dear
In fact you're overdue.
Now don't go playing "What a surprise"
'Cause we both know you knew!
I've finished all the kitchen work
And done the ironing too.
As for the housework, it's all done
There's none for you to do!
Your coffee's by the TV set
The kids are all in bed.
So while I'm on my ALARA net
You go rest your weary head!

* PO Box 438 Chelsea VIC 3196

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AMSAT Australia

*Bill Magnusson VK3JT**

National co-ordinator
Graham Ratcliff VK5AGR
Packet: VK5AGR@VK5WI
AMSAT Australia net:
Control station VK5AGR
Bulletin normally commences at 1000 UTC, or 0900 UTC on Sunday evening depending on daylight saving and propagation. Check-ins commence 15 minutes prior to the bulletin.

Frequencies (again depending on propagation conditions):
Primary 7.064 MHz. (Usually during summer).

Secondary 3.685 MHz. (Usually during winter).

Frequencies +/– 5 kHz for QRM.
AMSAT Australia newsletter and software service
The newsletter is published monthly by Graham VK5AGR. Subscription is $25 for Australia, $30 for New Zealand and $35 for other countries by AIR MAIL. It is payable to AMSAT Australia addressed as follows:
AMSAT Australia
GPO Box 2141
Adelaide SA 5001

Congratulations

Arch Woolnough VK3BW and I had often spoken over the air. I had not met him until he knocked on my door one day in 1966, his arms full of traps for a triband beam. I had been lamenting (on air the night before) my lack of a few traps to refurbish an old TH-4 which I had acquired from a friend whose tower had collapsed in a storm. Arch, in characteristic fashion, had searched his junk box, found some traps and delivered them. I was delighted to receive them and to meet him face to face. We have been friends ever since.

Arch was first licensed in 1929. He wanted the callsign 3AW but a commercial broadcaster already had it so he settled for 3BW. Those were the days when amateurs vied successfully with commercial stations for an audience. Gaining quite a reputation in broadcasting, Arch was awarded the Gadsen trophy in 1934 for quality and content of broadcasting.

"What has all this got to do with satellites?". Being an old timer has never stopped Arch from embracing new technology. He became interested in satellite operation with the launch of OSCAR-10. An exponent of CW, he did much of his operating in this mode. Later he transferred his attention to OSCAR-13. This brings me to the subject of this short note. Recently Arch completed his 1000th QSO via OSCARS 10/13. He will shortly be celebrating his 85th birthday and is looking forward to his second 1000 QSOs possibly with the aid of phase 3d. Typically modest, Arch does not claim this to be a noteworthy event and tends to shrug it off. I believe it's worth a mention. Congratulations Arch.

Many thanks to Barrie VK3YXK for the news. Maybe you know of other old timers who have successfully made the effort to work the birds. I can think of a couple. People like AMSAT-VK stalwart Chas Robinson VK7KP, and Col Fletcher VK2ASF. Col's first rig was a spark transmitter. He was fluent in the Japanese language and one of his real joys (well into his 80s), was to work JAs via OSCAR-10. Let me know of any similar exploits you think may be worthy of mention in this column.

TELECOM Time Setting Service for PC Users

This service came on line early last year in Melbourne. Due to the programming efforts of a local amateur a few of us have been using it ever since. It works well and takes ALL the guess work out of setting your PC clock accurately. Recently several programs have been appearing on the BBS network. They all appear to do the job but they are not all without bugs. One well behaved one is called TELETIME. It comes as a zipped file and expands into a read.me file, a .dat file and a .exe file. Get hold of this program and give it a go. The service is available in all capital cities.

AO-13 and "S" Mode

AO-13 has been performing brilliantly. Operators on "S" mode have enjoyed excellent conditions during the summer attitude schedule. Features included several hours of "B/S" time with more than an hour and a quarter of exclusive "S" mode time. Squint angles were often down into single figures and frequently down to 1 or 2 degrees. Even down here in south eastern OZ the elevation angles have been quite high, sometimes up to 45 degrees. This has been due to some masterful scheduling by the control stations who have managed to pick their way through the recent series of eclipses with flying colours. Thanks chaps.

Working the MODE "A"/"K"/"T" Satellites

Last month I gave a brief account of the various transponder modes on the current amateur radio satellites. Let us look now at the HF/VHF modes in more detail.

Overview

Mode "A" involves a 2 metre uplink signal which the satellites retransmit in the 10 metre band. Mode "K" is an all HF mode. You uplink in the 15 metre band and the satellite retransmits in the 10 metre band. Mode "T" requires an uplink in the 15 metre band and downlinks in the 2 metre band. Some satellites schedule modes "K" and "T" on together. In this mode an uplink on 15 metres will be retransmitted in both the 10 metre and the 2 metre bands. These combinations of modes make it possible for the beginner to have a go without the need for lots of expensive gear. They present enough of a challenge to separate real triers from casual triers and if you are serious it can whet your appetite for more. With persistence it is possible to get very good results from mode "A", "K" or "T".

Many operators in Europe concentrate on these HF/VHF modes and specialise in "over the horizon DX" on the Russian RS birds as they traverse the north polar region. This is a specialised area and requires some experience with sporadic HF and VHF propagation. It is not a common activity in the southern hemisphere as there are no heavily populated areas surrounding the south pole. It appears to be in the trans-polar region that most of this activity takes place. I'd be interested in hearing from anyone who has had experience of this in VK. There may be instances of South American or South African QSOs by this method. Distances claimed by northern hemisphere stations would indicate that these paths are possible.

Equipment

The most appealing aspect of these modes is the equipment list. It is fairly modest. You will need an HF SSB/CW transceiver and a 2 metre SSB/CW transceiver. The antennas also can be quite simple. A moderate gain vertical for 2 metre uplink and a 29 MHz or 21 MHz dipole for downlink or "K/T" uplink. You don't need rotatable antennas or auto-track.

What you can do

All these modes are "talk through" transponder modes. That means you can use them like a voice (or Morse) duplex repeater in the sky with a rather large coverage area. Stations thousands of kilometres apart can make contact in this way. It is "duplex" in the sense that you

can hear yourself coming back through the satellite as you speak. This is the ultimate way of monitoring your own station performance. There is NO excuse for a crook signal on the satellites!

Frequencies

I'm not going to mention specific frequencies here as the full list was published in the January 1994 column and will be updated in July. I will refer only to amateur frequency bands. The early mode "A" transponders did not generally invert the passband. Most of the current satellites invert the pass band. This is done to partially compensate for Doppler shift. On mode "A/K/T" this is hardly necessary. The signals will not move more than a few kHz even during an overhead pass. A result of inversion is that if you uplink on USB the downlink will appear as a LSB signal on a "mirror image frequency" in the downlink passband.

Tracking

All the amateur radio satellites carrying modes "A/K/T" are in low earth, near polar orbits. This simplifies tracking requirements. One can be confident of hearing at least two passes in the mornings and two passes in the evenings. Once you know how far apart these passes are, say 90 minutes, you can estimate within a few minutes when the next one is due. You cannot get it exactly right this way but it will do for a start. If you move deeper into amateur radio satellites you will need at least a programmable calculator or, better still, a computer to do the quite difficult job of predicting the times of future passes.

Operating

As well as a "talk through" transponder, some satellites carry a "Robot". The robot is a recording device which you can access on CW. If you call the robot on the correct frequency it will respond with a QSO number, thank you for the QSO, then sign off. In the process the QSO is recorded on the satellite for retrieval by the command station. QSLs are given out for contacts with the robot.

All amateur radio satellites carry beacon transmitters. You should listen for the beacon when you expect the bird to come over your horizon. When you hear it you can begin calling and compare the strength of your signals with the strength of the beacon. You should adjust your uplink power so that your return signal does not exceed the beacon by more than a few dB. This gives others a fair go as the available transmit power is shared between all signals in the passband. Be sure not to get a reputation as an "alligator" (a big mouth).

If you hear someone calling CQ you can quickly estimate your required uplink frequency and make a test call. If you're close, you can "talk yourself" onto frequency by listening to your own signal. Some operators find that an automatic Morse keyer is useful for identifying the retransmission of their own signal.

Doppler shift

Once contact is made you will find that the signals appear to need retuning after a while. This is because the Doppler shift on both uplink and downlink signals is varying as the satellite moves closer to or further away from the stations in contact. It appears to be best practice for both station operators to leave their receive (downlink) frequency fixed and tune their transmitters (talk yourself back) onto frequency at the start of each "over". This method seems to give more acceptable results than tuning your receivers to compensate. It means that, once established, the QSO does not tend to wander all over the passband and perhaps interfere with other contacts. Good luck with modes "A/K/T".

Next Month

A discussion of the mode "B" and "J" transponders.

359 Williamstown Rd, Yarraville, VIC 3013
Packet: VK3JT@VK3BBS

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SOME THINGS HAVE NO COMPARISON

amateur radio action

The magazine for the serious radio operator

AT YOUR NEWSAGENT EVERY MONTH

AWARDS

*John Kelleher VK3DP — Federal Awards Manager**

I have it on good authority that there are many, many members of the Amateur DX fraternity who have box upon box of QSL cards sitting idly, which could be put to use earning Awards. With the present lull in the Solar Cycle now would be a great time to dig out those cards which qualify, and set about compiling your claims.

CTARL Awards Program

The Chinese Taipei Amateur Radio League sponsors the following Awards.

The Worked Chinese Prefixes Award is offered for working Chinese stations with the following prefixes: BA BA1T BY BV BZ and 3H-3U. Contacts on any mode and band are acceptable for the Award. Classes: Basic (20 prefixes) Class B (30 prefixes) and Class A (40 prefixes).

The 10,000 Award is available for contacts with stations in towns with different postal code 3 numbers (zip codes) in Taiwan that add up to at least 10,000. A postal code may be worked only once.

The Worked All Taiwan Districts Award is offered for making contacts with a station in each of Taiwan's ten call areas, 0-9. There are no band or mode restrictions.

To apply for each award, submit either photocopies of the QSL cards, or a signed certificate (signed by an official of a local Radio Club, or two other amateurs) that the necessary QSL cards are in your possession, a log extract and a fee of US$5.00 or 10 IRC. Mail your applications to:- CTARL Awards Manager, PO Box 93 Taipei, Republic of China.

WROCLAW Award

From Poland comes the **WROCLAW AWARD,** which is issued by the Polish Amateur Radio Club Station SP6PKQ "IKAR" located in Wroclaw. Qualifications date from 6 May 1945. DX stations require 10 points, which may be scored in the following manner. Each QSO 2 points. Each QSO with SP6PKQ 5 points. Each QSO with SP0 SR SN SQ0 or 3Z prefixes 7 points. Each QSO made during the "Days of Wroclaw" celebrations (6 to 10 May) double points.

Contacts with stations may be repeated on all bands using different modes of emission. The above requirements apply equally to Short Wave Listeners. Applications may be confirmed by an official of your Radio Club, or by two licensed amateurs, and forwarded to:- KLUB KROTKOFALOWCOW SP6PKQ - "IKAR" PO Box 2190 50-985 WROCLAW 47 POLAND.

The DLD Awards Program from Germany

The DLD Award is an official award issued by the DARC, and is available to all licensed amateurs and SWL's. The names of new award holders will be published in the DARC magazine CQ-DL.

DLD Award classes and modes

1. DLD is issued separately for each amateur band.
2. DLD is in different classes on each band as follows: DLD100 DLD200 DLD300 DLD400 DLD500 (with lapel badge) DLD600 DLD700 DLD800 DLD900 DLD1000 (with engraved badge of honour).
3. For SWL's the awards are known as DLD-SWL 100 up to DLD-SWL 1000.
4. All DLD awards may be issued for mixed modes, or may be endorsed for single mode operation, providing that this is supported by the necessary QSL cards.

Conditions of issue

1. All modes permitted by the applicants licence may be used.
2. The initial award is for 100 different DOKs on a single band. For each further 100 DOKs on the same band, the applicant may apply for the next class of DLD.
3. Stations only have one DOK, which is registered with the DARC QSL bureau. The DOK, or amateur administration area may be taken from the QSL card, or by request to the German operator during the QSO. Special event DOK's are used from time to time.

Applications for DLD

All valid DOK's are listed in the official DOK list which may be obtained from the sponsor and used as the application form. It is recommended that you use a separate list for each band. The DOK list costs DM5 or 5 IRCs plus a self-addressed label. Applications must be verified by the applicant's local club, or an official Awards Manager. Ask for a fee schedule from the sponsor when you request your DOK list. Apply to: DARC, DLD-Diplome, Postfach 11 55 D-3507 Baunatal 1 Germany. Note that the above post code will have been changed to five figures since the combination of the two Germanys. The new DOK list does contain the listings applicable to the area of the old East Germany.

*PO Box 300 Caulfield South 3162

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Contests

*Peter Nesbit VK3APN — Federal Contest Coordinator**

Contest Calendar May-July 1994

May 7/8	ARI DX Contest CW/SSB/RTTY	(Apr 94)
May 14/15	CQ-M Contest (CIS)	(Apr 94)
May 14/15	Sangster Shield (80 m ZL)	(Apr 94)
May 14/15	Danish SSTV Contest	(Apr 94)
May 28/29	CQ WPX CW Contest	(Feb 94)
Jun 4	Merv Stinson Memorial 80 m	
Jun 4/5	RSGB Field Day CW	
Jun 11/12	ANARTS RTTY Contest (VK)	
Jun 11/12	QRP Weekend 1994	
Jun 18/19	VK Novice Contest	
Jun 18/19	All Asia CW DX Contest	
Jun 25/26	ARRL Field Day	
Jul 1	Canada Day CW/Phone	
Jul 2	NZART Memorial Contest (80 m)	
Jul 2/3	Venezuela SSB DX	
Jul 9/10	IARU HF Championship	
Jul 16	Jack Files Memorial (80 m Phone)	
Jul 16	Colombian Independence Day Contest	
Jul 23	Jack Files Memorial (80 m CW)	
Jul 23/24	Venezuela CW DX	

Who amongst us hasn't yearned for the ideal contest station: pushbutton rigs, linears, and beams on every band; a quiet mountaintop QTH with views down to 0 degrees in every direction; massive ground conductivity; an understanding family where the XYL says "Another contest? How wonderful! What can I do to help you dear?" and kids who offer to help with antenna refurbishment or perhaps sweep the shack floor; no TVI...

For most of us, the reality is somewhat different. Luckily, over the next couple of months there are some contests which should appeal to the average ham who doesn't have the ideal contest station and/or time to spare. These include several 80 m sprints, which appear to be growing in popularity each year, and a new QRP contest organised by the CW Operator's Club. The sprints are short duration affairs which, despite requiring a minimal amount of time (you can enter and your family not even know about it), are extremely competitive. And, of course, simple rigs, even home brew ones, will suffice in a QRP contest.

So, how about firing up on 80 for one of the sprints, or dusting off that old home brew QRP rig. You may actually have a very good time! Thanks this month to VK2BQS, VK2SRM, VK4LW, VK5AKZ, *JARL, CQ, QST, Radio Communications, and Break-In.* Until next month, good contesting!

Peter VK3APN

Contest Details

The following contest details should be read in conjunction with the "General Rules & Definitions" published in April 1993 *Amateur Radio.*

Merv Stinson Memorial Sprint (80 m Phone & CW)

1030-1130z, Sat 4 June

The Redcliffe Radio Club of Queensland invites all amateurs and SWLs to enter the 2nd Merv Stinson Memorial Contest. This contest remembers the effort and assistance Merv gave to many people to help them obtain their certificates of proficiency, and he was an active participant in many club activities. Last year's contest was supported by over 30 entrants from VK, ZL, P2 and VE.

The object is to contact (or log QSOs if an SWL) as many stations as possible on 80 m using phone or CW. Contacts with any country are valid. Exchange RS(T) & serial number (leading zeros are optional, ie 591 can be used instead of 59001). The score is the number of stations worked (no multipliers). Logs must show date/time (UTC), callsign, RS(T) & serial numbers sent and received, mode. Include a cover sheet showing name, address, callsign, total valid QSOs, and a declaration that the rules and spirit of the contest were observed. Send logs to: Contest Manager, Redcliffe Radio Club, PO Box 20, Woody Point, QLD 4019, to be received by COB Monday, 4 July. Certificates to the highest scores in each section overall; in each VK call area; ZL; P2; and the rest of world.

RSGB Field Day

1500z Sat to 1500z Sun, 4/5 June

This CW contest usually stimulates considerable portable activity in the UK and Europe. Overseas stations are invited to participate and submit a log, but otherwise are ineligible to compete. Certificates will be awarded to the overseas stations in each continent making the most contacts. Send log to: RSGB HF Contest Committee, PO Box 73, Lichfield, Staffs, WS13 6UJ, England.

ANARTS WW DX RTTY

0000z Sat to 2400z Sun, 11/12 June

This contest is organised by the Australian National Amateur Radio Teleprinter Society, and runs on the second full weekend of June each year. The object is to contact as many stations locally and overseas as possible on 80-10 m (no WARC bands), using any digital mode (no satellite). Categories are single operator, multioperator (one Tx), and SWL. Max operating time is 30 hrs (single op). Rest periods can be taken at any time during the contest. Mark rest periods in log. Messages comprise RST, TIME, CQ ZONE. For each valid QSO, points are claimed according to zone. Space precludes publishing a complete points table, however the following extracts show the points claimable by entrants in zones 28, 29, and 30. The numbers show the number of points for QSOs with zones 1 to 40, working left to right, top to bottom:

Your Zone = 28:

31	40	40	44	45	49	53	51	55	54
49	48	46	32	30	26	22	20	20	25
20	11	14	10	15	05	07	02	10	17
31	24	34	25	36	30	22	26	19	34

Your Zone = 29:

39	50	43	52	54	47	49	54	52	44
42	37	37	42	39	36	32	30	30	34
28	21	24	20	23	16	15	10	02	09
15	32	42	33	39	31	24	24	20	44

Your Zone = 30:

35	50	35	44	46	38	40	44	45	37
41	33	34	49	47	42	38	45	32	43
37	29	30	24	30	22	18	17	09	02
24	07	51	42	47	40	33	32	29	48

Countries per ARRL DXCC list, except that each call area in mainland VK, VE, JA and W counts as a separate country, which naturally excludes mainland VK, VE, JA and W as separately claimable. Call areas outside these mainland areas (eg VK0, JD1, KL7, KC4) count as separate countries. One's own country (as defined herein) can be worked for QSO points, but not for a multiplier.

Points are determined for each band and then added. Countries are similarly tallied. Continents are those worked on all bands (max 6). Total score is: points x countries x continents. Non-VKs should add "VK Bonus" to their points tally, which is 500 pts for each VK worked on 80 m, 400 pts on 40 m, 100 pts on 20 m, 200 pts on 15 m, and 300 pts on 10 m. Send log to: Contest Manager, ANARTS, PO Box 93, Toongabbie, NSW 2146 by 1 September. If required, a full page scoring table is available from ANARTS upon receipt of a SASE.

QRP CW Weekend 1994

0000z Sat to 0800z Sun, 11/12 June

This contest is sponsored by the CW Operators' Club, and recognises World QRP Day (Jun 14). It is open to entrants from VK, ZL and P2. Use 80-10 m, preferably calling on recognised QRP frequencies (1815, 3530, 7030, 14060, 21060, 28060), then QSYing to a working

frequency. To spread interest and reduce possible band congestion, it is suggested that stations distribute their calling as follows: On Hour = All Bands; Hour + 15 mins = 40 m; Hour + 30 mins = 20 m; Hour + 45 mins = 15/10 m. Exchange RST + serial number. Repeat QSOs with the same station are allowed with a minimum of 3 hours between subsequent QSOs. QRP stations should score 5 points for each non-DX station worked, and 20 points for each DX station worked. QRO stations should score 1 point for each non-DX station worked, and 10 points for each DX station worked. "DX" means any station outside VK, ZL and P2. QRP means up to 5 W carrier power to the antenna. QRP stations must sign /QRP. Send logs to: Ron Everingham VK4EV, 30 Hunter Street, Everton Park, QLD 4053 by 14 July 1994.

35th All Asian DX Contest

CW: 0000z Sat to 2400z Sun, 18/19 June
Phone: 0000z Sat to 2400z Sun, 3/4 Sept

The object is to contact as many stations in Asia as possible, on 160-10 m (no WARC bands). Classes are single operator, single and multiband; and multioperator multiband. Call "CQ AA" or "CQ Asia". Exchange RS(T) plus two figures denoting your age (YLs send "00"). For each QSO score 3 points on 160 m, 2 points on 80 m, and 1 point on other bands. The multiplier is the number of different Asian *prefixes* worked per band, according to CQ WPX rules (refer Feb 94). Example: JS9ABC/7 counts for prefix JS7. Note that JD1 stations on Ogasawara (Bonin & Volcano) Isl belong to Asia, and JD1 stations on Minamitori Shima (Marcus) Isl belong to Oceania. Final score is total QSO pts x total multiplier.

Use standard log and summary sheet format, clearly showing new multipliers when first worked. Send logs postmarked by 30 July (CW) and 30 Sept (SSB) to: JARL, AA DX Contest, Box 377, Tokyo Central, Japan. Indicate phone or CW on envelope. Awards include certificates to the top 1-5 stations in each country on each band (depending on activity), and medals to the continental leaders. For full results please enclose an IRC and SAE with log.

Asian countries are: A4 A5 A6 A7 A9 AP BV BY EP HL HS HZ JA JD1 (Ogasawara) JT JY OD S2 TA UA9/0 UD UF UG UH UI UJ UL UM VS6 VU (Andaman & Nicobar) VU (Laccadive) XU XW XX9 XZ YA YI YK ZC4 1S (Spratly) 3W/XV 4S 4X/4Z 5B 7O 8Q 9K 9M2 9N 9V; Abu Ail/Jabal at Tair.

ARRL Field Day

1800z Sat to 2100z Sun, 25/26 June

This mixed mode contest is open to W/VE. As with the RSGB Field Day (see above), overseas stations are invited to participate and submit a log, but otherwise are ineligible to compete. Exchange RS(T) + QTH, W/VE will send operating class + ARRL/CRRL section. Send log postmarked by 26 July to: ARRL Field Day Contest, 225 Main St., Newington, CT 06111, USA.

VK Results of 1993 CQ 160 m DX CW Contest

(QSOs/Mult/Countries/Score):
VK3IO 75 15 9 16512

1994 WIA VK Novice Contest

0800z Sat to 0800z Sun, 18/19 June

The object of this contest is to encourage amateur operation in Australia, New Zealand and Papua New Guinea, and particularly to promote contacts with novice and radio club stations. Only stations in VK, ZL and P2 call areas are eligible to participate.

All operations must be confined to the novice frequency allocations in the 10, 15 and 80 m bands, viz 3.525-3.625 MHz, 21.125-21.200 MHz and 28.100- 28.600 MHz. No cross-band operation is permitted. Stations in the same call area may contact each other for contest credit.

Sections include (a) Phone-novice/full call; (b) CW-novice/full call; (c) SWL. Except for club stations, no multi-operator operation is allowed.

Phone stations call "CQ Novice Contest", CW stations call "CQ N". Exchange a serial number comprising RS (or RST) followed by three figures commencing at 001 for the first contact and increasing by one for each subsequent contact.

Any station may be contacted twice per band, provided at least 12 hours has passed since the previous contact with that station. SWLs may log up to 10 sequential contacts made by a station, and then must log no less than another five stations before logging that station again. The five stations so logged need a minimum of one contact only logged.

Score 5 points for contacts with novice or combined call stations, 10 points for contacts with club stations, and 2 points for contacts with full call stations. SWLs score 5 points for novice to novice contacts, 2 points for novice to full call or full call to full call contacts, and 10 points for contacts made by a radio club.

Logs must show: Date/time UTC, Band, Mode, Station contacted, Report and serial number sent, Report and serial number received, Points. Each log sheet must be headed "VK Novice Contest 1994". The total claimed score for each page must be shown on the bottom of the page.

Attach a summary sheet showing all standard information (refer to "General Rules & Definitions" published in April 1993 *Amateur Radio*). In the case of a club station, the summary sheet must be signed by a responsible officer of the committee, or a licensed operator delegated by the committee to do so.

Entrants may submit only one contest log per mode. Logs for entries where an entrant uses more than one callsign whilst operating in this contest will not be accepted. Send entries to: Novice Contest Manager, WARC, Box 1, Teralba, NSW 2284, to arrive by 25 July 1994.

The **Keith Howard VK2AKX Trophy** will be awarded to the novice entrant with the highest aggregate (phone and CW) score, and the **Clive Burns Memorial Trophy** to the novice entrant with the highest CW score (these are perpetual trophies on permanent display at the Federal Office). In each case, the annual winner will receive a suitably inscribed wall plaque as permanent recognition. Certificates will also be awarded to the top scoring novice stations in each call area, the top scoring station in each section, and to any other entrant where meritorious operation has been carried out. Awards are at the discretion of the contest manager. A Certificate of Participation will be awarded to all operators who submit a log in this year's contest.

Ray Milliken VK2SRM
Novice Contest Manager

RESULTS OF 1993 VK/ZL/OCEANIA DX CONTEST CONTINENTAL LEADERS:

CONTINENT	SINGLE OPERATOR		MULTIOPERATOR		SWL
	PHONE	CW	PHONE	CW	PHONE
Oceania	VK3EW	VK2APK	ZL2AWC	-	-
Africa	-	-	-	-	-
Asia	RK9C	RW9WA	JA9YAV	-	JA1-7777
Europe	G3NAS	RB4IXQ	UR8J	UR8J	OM3-27707
North America	-	K3ZO	N6AA	-	-
South America	-	LU2DKN	-	-	-

INDIVIDUAL RESULTS:

(Shown in order: Callsign, Band, Band Scores, Final Score. * = Certificate winner. Band Score = Band Points x Band Multiplier; Final Score = total Band Points x total Multiplier.)

CALL	BND	160	80	40	20	15	10	SCORE
PHONE, SINGLE OPERATOR								
Oceania:								
DU7AFT*	15					10754		10754
V85BJ*	A	1254			42420			61372
VK1KLB	80		1470					1470
VK1LEC*	80		3300					3300
VK2APK*	A	320	7590	26840	102424	63448	75	984390
VK2ARJ	A	400	5980	4420	53573	7832	3	315596
VK2IVK	A		12960	330	480	97836		279112
VK2PS	A	100	1440		4366			24072
VK2VM*	20				64702			64702
VK3EW*	A	40	11050	154105	93275	64988		1445860
VK3SM*	20				1480			1480
VK4DGS	A		1860	30	2295	1612		34602
VK4ICU*	15					273000		273000
VK4LT	A		240	5	40920	14994	429	141804
VK4NEF	A		1530			25344		45570
VK4OD*	20				1760			1760
VK5AFO	A		4550	840	9153	9100	243	122430
VK5GN*	A		360	910	168912	95758	1188	684956
VK5OE*	20				1806			1806
VK5PMC	A		2160			103472		144088
VK6WOG*	A		1600	6380	16377	101150		370111
VK8AV*	A		1260	5	4898	59388	2550	186984
YB2BKJ	A			700	1332	28		5390
YB6INU	A			205	5057	1326	6	16120
YC3SPS*	15					27800		27800
YC6KD	15					17108		17108
ZL1AAS*	A	160	28080	4030	44919	51408		589410
ZL3TX*	A	720	57200	80	9156	2080		253130
ZL4NF*	20				89856			89856
Asia:								
JA1AAV	20				20			20
JA1AB	A				40	270		520
JA1BUI	20				77			77
JA1IT	A			5	16	400		735
JA2DLM	A			5	119	600		1440
JA2GHP	15					252		252
JA2IZA	15					126		126
JA3CE	15					24		24
JA3ETD*	15					720		720
JA3JOT	A			60		418	72	1368
JA3SSB	A				15	40		105
JA3YKC	15					50		50
JA4AQR	A				1	288		333
JA5APU	15					132		132
JA5IP	20				50			50
JA6BWH	A		10	5				30
JA6QDU	A				9	576		765
JA7BEW*	A		40	120	990	2960	24	11868
JA7HB	15					88		88
JA9XAT	15					50		50
JA0BQB	A				15	270		420
JA0CJK	15					260		260
JE2NWN*	20				144			144
JE4VSC	A				1035	1496	27	5810
JE7DOT	A				60	96		312
JE8JXU	15					8		8
JE0EHE	15					224		224
JF2LEX	10					120		120
JF3EIU	10						759	759
JG1EGG*	10						972	972
JG1GCO	15					12		12
JG1JQJ	15					504		504
JG1RDV	A				4	340	24	672
JG1RRU	20				1			1
JG1TVK	20				91			91
JG1UKW	15					20		20
JG4OOU	15					84		84
JH1ACP	15					224		224
JH1TYU	15					340		340
JH1UUT	A				66	450	3	1024
JH2HFD	A		80	990				1650
JH2WHS	15					528		528
JH3LCU/1	A		40	5	154	1140	96	4263
JH4OYA	A				18	72		162
JH8DBJ	15					440		440
JH8DHV	15					168		168
JL6IPK	15					320		320
JN1FRL	15					40		40
JN1OVF	40			45				45
JQ1VNM*	40			3120				3120
JR1MRG	A		10		15	272		588
JR2TRC	15					96		96
JR3CVJ	15					420		420
JR3KAH	15					280		280
JR7LVK	A					594	3	684
RK9C*	A		720	3990	3930	1120		36573
RW9WA	A			100	1088	12		2185
7K2CWQ	15					18		18
Europe:								
DK3KD*	20				451			451
DL4YBP	A				48	64		240
DL6CIA	A			10	135	24		429
EA3BOX*	20				90			90
EA3GHQ	A				4	16		40
ES5RY*	20				363			363
F5NBX*	A		20	5	684	2		1260
G3NAS*	A		160	10	192	216		2156
HB9DX	20				90			90
HB9IK*	A			20	456	110		1330
I4CSP	A				28	8		66
IK4SWX*	A				440	80	3	1003
LA8GV*	A				30	2		48
LY2ZZ*	20				2128			2128
LZ2VP*	20				320			320
OH6IU*	A				1316	64		1980
OH6LNI	A				140	36		320
OH7NW*	20				30			30
OK1AD*	A				518	42		867
OM3CRH*	15					12		12
OM3EA	20				360			360
OM3KAG*	20				690			690
OZ8T*	20				16			16
PA0EHF*	A				72	4		112
RB5QW*	20				154			154
SM5BBS*	20				66			66
SP1HJK	20				36			36
SP2FOV*	A				116	112		456
SP5CJQ	A				78	32		210
SP8EEX*	20				40			40
UA1ZDX	20				270		270	
UA6LAK	A				120	40		300
UB3IDX*	A			280	396	30		1826
UV3HD*	20				456			456
YU7SF*	15					2		2

North America:								
K3ZO*	A			200	2			252
N6AA	A		10		9			52
South America:								
LU2DKN*	20				60			60
PHONE, MULTIOPERATOR								
ZL2AWC*			440	960	32			3960
JA9YAV*						8		8
RB4IYU					112	2		144
UR8J*			120	1320	1330	896		13818
US7I			120	1260	1408	192		10023
UT7W			10		2090	560		5280
PHONE CHECK LOGS								
DF5WN, SP7VCK, VK3APN								
CW, SINGLE OPERATOR								
Oceania:								
VK2APK*	A	560	64800	168200	36600	18252		1248946
VK2PS	A	700	1350	660	1764	450		32604
VK2QF	A		540	1120	3233	24924	12	84840
VK2SPS	A		300		2925	2		6165
VK3APN*	40			60750				60750
VK3KS	20				4			4
VK3XB*	20				1280			1280
VK4CMY	20				25000			25000
VK4ICU	15					37962		37962
VK4OD	A		40		2064	4136		14418
VK4TT*	20				62592			62592
VK4XA*	15					110080		110080
VK4XW	A		10	1900				2200
VK5AGX*	20				20184			20184
VK6AJ	A			80	12065	10292	108	55277
VK6BGV	A			2640	23424	14416	27	115804
VK6HG	A		480	2185	14382	4902		76500
VK6ZH*	A			2640	36120	67130		259532
VK8AV*	A	240	15300	20650	125020	37024	612	832397
YB2BKJ*	20				2479			2479
YB6TI*	15					112466		112466
ZL1AIZ*	A	300	52800	81640	12160	12972	360	721897
ZL1BN	A	20	11070	44145	6674	12090	624	336174
ZL1HV*	15					13552		13552
ZL1VD	A	20	660	20160	10260	112	12	101412
ZL2AGY*	A		10	369840	2790	3456	108	597312
ZL3GQ*	A	180	19000	185225	10998	16100	243	785601
ZL4QY*	80		3640					3640
Asia:								
JA1AAT	15					112		112
JA1AUD	A		350	210	20	484	12	4480
JA1BNW	A			140	126	396		1958
JA1POS*	20				1			1
JA2GTW	A			490	63	272	3	2668
JA3ARM	A	5	126	460	48			1848
JA3JOT	A			5	176			243
JA4AQR	15					32		32
JA5IP	40			150				150
JA6BWH	A		90	30	6	42		620
JA9CWJ	A		40	45	70	224	27	1886
JA9XAT	A				4	3		14
JA0BQB	A				35	60		190
JE2NWN	A				50	216		476
JF0SGW	A				54	140	60	748
JG1RDV	A				15	340		507
JG1RRU	40			40				40
JG3CQJ	A		40	100	80	288		2001
JH1NXU	15					50		50
JH2ABL	A		10	120	105	210	27	2068
JH3ECB	A				270	528		1575
JH3WKE*	15					204		204
JH4OYA	A				1	48		65
JK1AJX/1*	A			100	348	858	72	4554
JK1GXU	A				42	16		110
JK2VOC	15					64		64
JR7OMD/2*	40			210				210
RV9WB	A			5	91	72		420
RW9WA*	A		90	385	525	396	27	6435
UD6DKW*	A				12	24		72
UN5G	A		160	385	150	192		3886
UN7BY	A			60	96	48		660
Europe:								
DJ5GG*	20				128			128
DK3KD*	A			300	243	12		1411
DL3RD	A				180	90		532
DL5AUJ	20				12			12
DL6YK	A			45	77	8		360
DL8UED	20				42			42
DL9AWI	A		40	75	42	2		648
EA2CR	A			5	1			12
EA5CKP*	A			20	70	2		220
EA5CLO	A				54	2		77
EA5SM*	15					18		18
ES4MM*	20				462			462
ES5RY*	A		40	80	275			1105
F5NBX*	A			10	96	2		240
G3DYY	A		10		36	18		220
G3GLL*	A		10	440	117	12		1680
G5MY	A			75	30			248
HA5LZ*	A			100	30			279
HB9IK*	A			210	136	132		1480
I0ZUT*	A			225	55	8		720
IK5TSS	A				2	2		8
LA8WG*	20				55			55
LY1CX*	A			40	270	108		1170
LY2BO	A			60	290	72		1139
OH7NW*	A				12	8		40
OH0/OH3TY*	A		10	160	135	32		1314
OK1AD*	A			45	448	156		1679
OK2BDI	A			5	136			198
OM3EA*	20				126			126
OZ1LO*	A			5	96	40		351
OZ5DX	A		10	100				175
RB4EK	A				56	40		198
RB4IXQ*	A			80	540	400		2784
RB5EX	A			100	35	144		840
S51MF*	A			180	84	40		1005
S59ZZ*	15					56		56
SM0CSX*	20				6			6
SP2FOV*	20				230			230
SP3AOT	A				12	8		40
SP5CJQ*	A			20	144	30		504
SP6OJE	20				91			91
SP7VCA*	15					2		2
SP8TK*	20				230			230
TF3DX*	20				4			4
UA6LAK*	A				190	156		720
UB5ZKG	A				20	8		54
UC2ACZ*	A				390	8		510
UO5OA*	A				126	36		300
UV3HD*	20				190			190
YL1WW*	A			40	189	100		976
YO6LV*	20				20			20
YU7SF*	A			100	16			232

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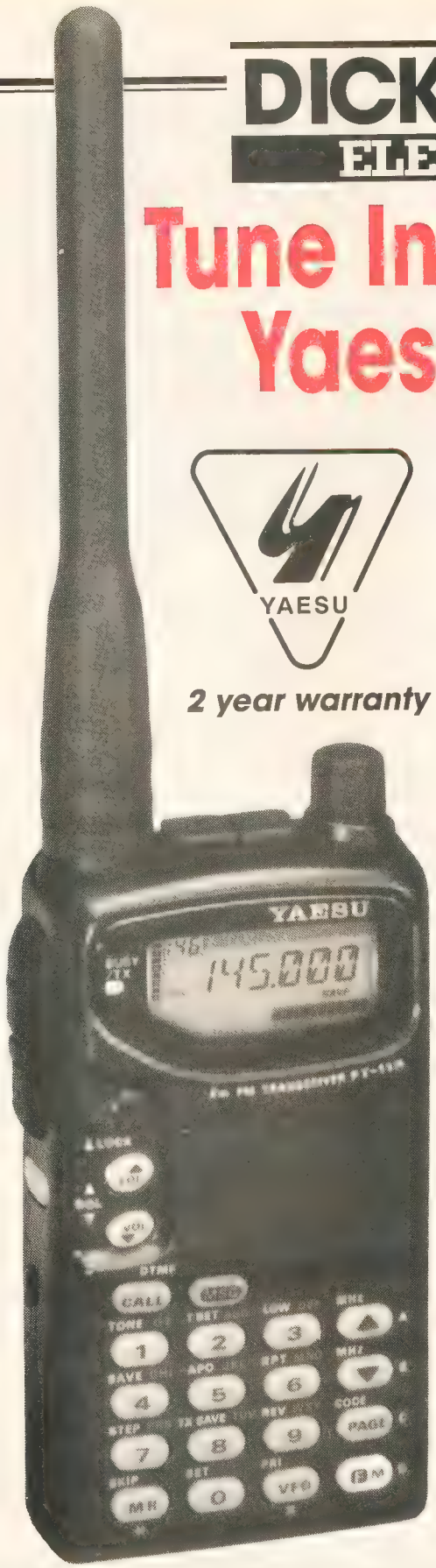
YAESU

2 year warranty



FT-11R Micro Deluxe 2m Handheld

New for '94! One of the world's smallest 2m FM handhelds with a full-size keypad, the FT-11R has been reduced in size, but not in features. Designed to fit comfortably in your hand, it's just 57 x 102 x 25.5mm (W.H.D) including the FNB-31 NiCad pack, and weighs only 280 grams.

The result of the latest in miniaturisation, microprocessor control and FET technology, the FT-11R provides a large back-lit LCD screen with full frequency readout, 150 memories (75 in alpha-numeric mode), full function keypad with easy SET mode, and up/down thumb control Volume and Squelch settings. A new high efficiency FET RF amplifier provides 1.5W output standard from the compact 4.8V battery pack, and up to 5W output from 9.6V (using an optional battery pack or PA-10 mobile adaptor). A range of battery life extenders, including Auto Battery Saver, Tx Save, and Auto Power Off (with ultra-low 20uA consumption) are included. Australian version Auto Repeater Shift, DMTF based selective calling and paging, extended 110-180MHz receiver coverage (including the AM aircraft band), and a variety of scanning modes are also provided.

Other new features include naming of memory channels, DTMF Auto-dial memories, and DTMF Message Paging with up to 6 alpha-numeric characters. A large range of accessory lines are also available for easier customisation of your transceiver.

The FT-11R comes with an FNB-31 600mA/H NiCad, belt-clip, approved AC charger, CA-9 charge adaptor and antenna.

Cat D-3640

$699

NEW FOR '94

Coming soon!

Shown approximately full size.

Yaesu FT-840 HF Transceiver

Blending the high performance digital frequency synthesis techniques of the FT-890 with the operating convenience of the FT-747GX which it replaces, the all new FT-840 H.F mobile transceiver sets the new standard for high performance affordable transceivers.

Covering all H.F amateur bands from 160m-10m with 100w P.E.P output, and with continuous receiver coverage from 100kHz to 30MHz, the FT-840 provides SSB/CW/AM operation (FM optional), 100 memory channels, a large back-lit LCD screen, two independent VFOs per band, an effective noise blanker, and an uncluttered front panel, all in a compact case size of just 238 x 93 x 243 (WHD). Unlike some competing models, small size doesn't mean small facilities. The FT-840 provides easily accessible features such as variable mic gain and RF Power controls, SSB Speech Processor for greater audio punch, and IF Shift plus CW Reverse to fight interference. Dual Direct Digital Synthesisers ensure clean transmitter output and fast Tx/Rx switching, while the low noise receiver front-end uses an active double-balanced mixer and selectable attenuator for improved strong signal handling. The FT-840 weighs just 4.5kg, and uses a thermally switched cooling fan, surface mount components and a metal case for cool, reliable operation.

An extensive range of accessory lines are available, including the FC-10 external automatic antenna tuner, so you can customise the FT-840 to suit your operating requirements.

Cat D-3275

YAESU

NEW FOR '94

Coming Soon!

2 Year Warranty

$1895

Mastercharger 1 Fast Desktop Charger

At last, an intelligent, fast desktop charger that not only suits most current Yaesu handhelds but also many previous models. Made in USA, the Mastercharger 1 is a compact fast charger that operates from 12v DC, and uses switch - mode technology and a Philips monitor I.C (with -△v full charge detection) to charge NiCad batteries between 6V and 13.2V. Charge time varies between 1/2hr and 2 1/2 hours, depending on battery voltage and capacity. Supplied as standard to suit the FT-23/73, FT-411/411e, FT-470, FT-26, FT-415/815 and FT-530, its charging cradle can easily be replaced, allowing for the insertion of a new cradle to suit earlier Yaesu transceivers (eg FT-209R) or different brands/models handhelds. The Mastercharger 1 requires 12-15V DC at 1.3A, and is supplied with a fused cigarette lighter cable for vehicle use.

Cat D-3850 **$199**

NOW AVAILABLE:
CHARGING CRADLES TO SUIT VARIOUS KENWOOD, ICOM, AND ALINCO HANDHELDS.

FT-990 H.F All-Mode Base Transceiver

The FT-990 offers many of the features of the legendary FT-1000 in a more compact and economical base-station package. Its excellent front-panel layout, together with clear labelling, a large back-lit meter and an uncluttered digital display allows very straight - forward operation. The receiver uses a wide dynamic range front end circuit and two DDSs to provide a very low noise level and excellent sensitivity over the 100kHz to 30MHz range. Transmitter output is 100W on all HF Amateur bands (SSB, CW, FM), with high duty cycle transmissions allowed. The internal auto antenna tuner and an inbuilt power supply are standard features, while the customizable RF speech processor and Switched Capacitance Audio filtering facilities are unique to the FT-990. Other features include IF Shift and IF Notch filters,IF bandwidth selection, 90 memories and one-touch band-selection.
Cat D-3260

$3995

LAST OPPORTUNITY AT THIS PRICE! Sale Ends 30th June '94. BUY NOW AND SAVE!

2 Year Warranty

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*MAJOR AMATEUR STOCKIST STORES SHOWN IN RED

North America:							
K3ZO	A	240	600	77			2774
N6AA*	A	40	330	119	224	60	3614
CW, MULTIOPERATOR							
UR8J*		200	495	1062	754	27	10857
UT7W			175	532	270	3	3074
CW CHECK LOGS							
DL7VOX, LA7IJ, OH2YL, UN6T							

SWL RESULTS					
(All phone; no SWL CW entries received)					
JA1-7777*			90	546	1083
OM3-0001	10	60	516		1168
OM3-27707*	10	5	1305	60	2508
ONL-383		10	1	36	115
ONL-4003*			450		450
SP-0142-JG			9	312	435
SP-0189-GD			25		25
SP-3003-LG*		45	507		864
SP4-208			102		102

SUMMARY:

Thanks to all who entered the VK/ZL/Oceania DX Contest, and of course especially those who submitted logs. Despite a clash with RSGB's 21/28 MHz Contest during the phone weekend, and a JA contest and poor conditions on the CW weekend, many fine scores were made.

Some multiband entrants will be pleased to find their scores considerably higher than expected. This occurred where they used the literal (but incorrect) procedure from the 1993 rules to calculate multiband scores, which led to artificially low scores. All multiband logs have been re-scored where necessary, using the same calculation procedure as in previous years.

DX entrants may have noticed that the flat 2 points per QSO, used in previous years, was replaced by one where points are graded according to band. The graded system has applied to Oceania for many years, and it seemed logical to extend it to non-Oceania entrants to provide a similar incentive to operate on bands other than 20 and 15 m. A number of entrants took advantage of this new system, and put in some good scores on 40 and 80 metres. All DX logs have been re-scored to the new points system where necessary.

1993 also saw the introduction of a multioperator category, which attracted 8 entries. Although not an overwhelming number, it is still early days. This category has been needed for some time, and it is hoped that more multioperator entries will be received in future.

Some entrants counted countries instead of prefixes, robbing themselves of thousands of points. In these cases I counted the number of prefixes and re-scored their logs accordingly. As expected this made a dramatic difference, for example one entrant went from 2800 points to well over 100,000! However, with several hundred logs to check, I really don't have the time or inclination to do this as a matter of course, so a 10% penalty has been applied to the offending logs. Next time please count your multipliers properly, because in future a less lenient view may well be taken!

Peter Nesbit VK3APN

Some Comments From Logs

Condx bad for Spain... *EA3GHQ.* FB contest and operators... *EA5CLO.* Next year again... *ES5RY.* Not so much activity this year... *G3GLL.* Poor condx made going hard... *G5MY.* Nice to meet old friends. Less stations in CW part, but still excellent... *HB9IK.* I am his young sister. I write the log because he is blind since

WIA News

$40,000 For Bulletin Board Libel

According to a report in the *Sydney Morning Herald* for 1 April, a West Australian man was awarded $40,000 damages after being libelled on a computer bulletin board.

Sydney Morning Herald reporter, Duncan Graham, said that *"...it is believed to be the first time a successful defamation action has been taken in Australia over material published on an electronic mail system."*

Apparently, an anthropologist working in the Kimberley region of Western Australia sent a message to a worldwide science related network of bulletin boards denigrating a Dr David Rindos, who was then at the University of Western Australia's Department of Anthropology.

The libellous material alleged sexual misconduct as well as professional misbehaviour which reflected on Dr Rindos' academic competence, the judge hearing the case commented in his judgement.

According to the Sydney Morning Herald report, the judge said *"...the nature of the remarks is such that they are likely to be repeated and that any rumours of a like kind that had circulated previously were likely to gain strength from their publication."*

The case has implications not just for telephone-accessed computer bulletin board networks, but for the amateur packet radio network, too. Items, articles or bulletins sent as "electronic mail" are "published" by the computer network system, just as surely as printed journals.

In some states, the defamation laws permit the originator (or author) to be sued for damages as well as the publisher of libellous material. Bulletin board system operators (sysops) are regarded as a "knowing publisher" as they have control of the system. If the sysop and the owner of a system are different people, or a person and a company for example, **both** may be held liable.

The issues and implications are complex, and the legal arguments tortuous, but BBS sysops, and the amateur community, will have to come to grips with the situation sooner or later.

July. He contacted only one ham, but is very glad now and says "see you again"... sister of *JA1POS.* Little stations also work in this contest! *JA3YKC.* I want more VK/ZLs active! *JA6BWH.* Interesting contest, but few VK/ZL stations... *JA9CWJ.* No good on 10 m... *JE7DOT.* Made my first ZL contacts in this contest... *LA8GV.* Condx bad, strong Aurora here... *LA8WG.* Sorry for few QSOs but bad propagation here... *LU2DKN.* Tnx for best contest in the world... *OH6IU.* I missed the first 2 hours due to broken balun. I'll be back again next year from *OH0... OH0/OH3TY.* The LF bands are really tough here. My HF beam is fixed on USA... *OZ5DX.* Extremely poor condx Saturday, nothing heard Sunday... *OZ8T.* Was nice to get 59+40 dB from VK... *RK9C.* My first VK/ZL contest... *SP2FOV.* My 3rd VK/ZL. Despite the most effort, the slimmest results! Conditions here simply not present until the last half hour when I just managed 2 QSOs! TF3DX. Not so much time due to baby sitting... *SP6OJE.* I was running a logging program under Windows. After working 92 stations I realised the PC was running fast. After changing to DOS I had no further problems... *V85BJ.* 40 m was poor, and QRN level was high. Gone are the days with long band openings. Condx even worse in the CW part, Sunday afternoon the noise was so high that nothing could be heard so I switched off and had a rest... *VK2APK.* Over 30 years participating in this contest, and it still gives me a kick! *VK2ARJ.* Some big DX pileups kept operating skills honed... *VK2QF.* Just a token entry, I was minding grandchildren... *VK3SM.* Although on car battery power and limited operating time, I enjoyed my "comeback" to HF contesting... *VK4CMY.* Had a great time, my first real go at a CW contest... *VK4ICU.* The pile-ups are a challenge,.. *VK4OD.* When I was on the band the DX wasn't, and when they were, my beam was in the wrong direction... *VK4TT.* Enjoyed the contest again. This being my second attempt I thought I would be better prepared, but no, band condx were severe on the low frequencies which made things harder... *VK5AFO.* Apart from antenna problems, was kept busy and enjoyed the contest. Good to hear so many DX stations... *VK5AGX.* Condx could have been better, but considering my battery powered setup am happy with the result... *VK6BGV.* A fun contest, but the XYL dragged me off to a wine festival... *VK6HG.* Poorer condx than last year, but enjoyed contacting many friends. First time I used a computer program for the contest, and it turned out to be a bit of a hassle! I had to perform some drastic surgery to make this submission... *VK8AV.* Only 15 m was open... *YB2BKJ.* Activity down on last year. Where were the VKs and ZLs, especially on 160 and 80? *ZL1AIZ.* Where were the VKs and ZLs on the low bands? Did a bit of QRN scare them away? Fell asleep and missed the dawn opening on 80... *ZL1BN.* Sorry for token entry this year, everything seemed to stop me getting on air... *ZL1HV.* Frustrated with 160 as only VK2BJ was available for points, despite two FK8s calling CQ JA and CQ DX!!! *ZL1VD.* Pity about condx. 40 m closed around 1500, and on Sunday it was noisy to say the least... *ZL2AGY.* CT using All Asia with a country list that put all countries in zone 25 did a great job... *ZL3GQ.* 10 m totally dead this year... *ZL3TX.* Computer broke down, so had to revert to the old methods. My wrist is still sore! *ZL4NF.* Could hear the JAs but they couldn't hear me. Heavy QRN Sunday... *ZL4QY.*

Ross Hull Contest and VHF UHF Field Day Results Corrections

A correction to the Ross Hull Contest results published last month: the score of 224 points for VK3WAL should have appeared in the 3 cm (10 GHz) band column.

There is also a correction to the VHF UHF Field Day results published last month. Eric Fittock VK4NEF came third in Section B with a score of 1344 points. My apologies to Eric for leaving him out of the list.

John Martin VK3KWA

**PO Box 300, Caulfield South, VIC 3162*

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Club Corner

South Coast Amateur Radio Club News

South Australian Technical Symposium

The 2nd Annual SA Technical Symposium will be run later this year. The format will be similar to last year's event, where a series of lectures will be presented on a range of topics of technical interest to amateur radio and electronics hobbyists. The date and venue for this year's Symposium have not been finalised as yet, however already we are collecting a quality line up of lecturers.

Topics already planned include:

- Getting into Amateur FAX and SSTV
- FM ATV Operation and Equipment
- Electrical & Electronic Measurements
- Electrical Safety in the Shack
- An Introduction to the world of Microprocessors
- The TPK Packet Broadcast Protocol Explained
- HF Wire Antennas
- VHF Earth-Moon-Earth Communications.

There are many other topics in the pipeline also. In next months AR magazine, watch out for information on how you can obtain YOUR ticket to attend this event!

Packet Education Program

The club is also conducting an active packet user education and recruiting drive. This is being led with the production of Packet Modems for the IBM PC based on the TCM3105 modem IC (compatible with BayCom and similar software packages). These modems are available for $50 each plus $5 postage to anywhere in Australia. Send your cheques to the address below.

The other very handy packet tool available is a packet operator's handbook called "The Hitch-Hiker's Guide to Packet Radio in SA (2nd Ed)". This booklet is 155 pages jam packed with information on everything from setting up a TNC, operating the commands on a Packet BBS, using a NETROM or Rose network, setting up a TCP/IP node, using the RTTYGate gateway BBS stations right through to an introduction to Satellite Packet Radio. While this has a bias towards the VK5 packet network conditions, much of the publication is generic and would apply just about anywhere. "The Hitch Hiker's Guide to Packet Radio" has become indispensable in many Amateur Shacks around the country already. If you would like to obtain a copy, you can send a cheque for $20 (includes postage and packing) to:

South Coast Amateur Radio Club Inc.
PO Box 333
Morphett Vale SA 5162

Delivery for both the modems should be within 6 weeks. Clubs wishing to make bulk purchases of 10 or more should write to the secretary for details of available discounts.

If you are in Adelaide, why not drop in to the South Coast ARC? The club meets every Wednesday evening at 8 pm at the Karawatha Community Hall, 12 Baden Tce, O'Sullivan's Beach. Club liaison frequencies are 146.675 MHz repeater or 147.675 MHz simplex on 2 m and 439.675 MHz simplex on 70 cm.

Grant VK5ZWI
Club Secretary

Port Macquarie Field Day 11/12 June 1994

This year the Oxley Region Amateur Radio Club Inc Field Day will take place at a new venue located in the middle of Port Macquarie on the harbour front.

The Field Day will commence at 3 pm on Saturday, 11 June with "Fox Hunt" trials (non-competitive) so that visitors can get a feel for the town. This will be followed by an evening social and dinner. The competitive Fox Hunting will commence on Sunday morning, 12 June.

The trade shows, amateur radio demonstrations such as satellite, packet, computers and other amateur radio interests, together with the "Flea Market" where you can bring your "don't wants" and sell, as well as buy things you "don't want", will commence at 9.00 am on Sunday, 12 June.

The venue this year is the newly built Scout Hall located in central Port Macquarie on Buller Street. This building is right on the harbour water front between Westport Bowling Club and the Country Comfort Motel.

Those in the family that are not interested in amateur radio can always drop a fishing line in the Hastings river or maybe fly a kite (subject to the weather).

The event also coincides with the Timberton Vintage Machinery Rally at Wauchope which should interest the oldtimers.

The local 2 m voice repeater is on 146.7 MHz, and the packet digipeater is on 144.875 MHz.

Event brochures and maps of the area can be obtained in advance by writing to:

The Hon Secretary ORARC,
PO Box 712,
Port Macquarie NSW 2444.

We are not the largest Field Day in NSW, nor the smallest, but we are the friendliest.

David A Pilley VK2AYD
Hon Secretary
ar

Sign up a new WIA member today — use the form on the reverse side of the AR Address Flysheet.

Divisional Notes

VK2 Notes

John Robinson VK2XY

By the time you read this, the outcome of the Council elections for 1994-95 will be known to you. One can only hope, before the event, that reason and common sense prevails and the future of the Division for at least the next year is positive.

Members will have, I hope, read and digested the Annual Report and associated literature. All has not been well with the administration of the Division in the past, despite the "window dressing" lulling members into a state of disinterest, or perhaps apathy.

It is evident that for a Division of this size, professional management practices are necessary. The Supreme Court summons delivered just before last year's AGM caused two very good people, with sorely needed skills and experience, not to take up their positions.

The Annual Report gave some details of objectives for the Division. A change to the fee structure, for one, further work on policies and procedures for another, overhaul of the Articles of Association, and tentative budgets for 1994 and 1995 — something never previously given or contemplated by past Councils, at least in the past 25 years.

Management expertise available within the Division needs to be strengthened. This can be achieved perhaps by drawing on a pool of retired professionals for advice — even providing a little help with carrying out some tasks, maybe. Some consideration was given to this last year, but with all the "sabotage" and nonsense generated by some members opposing change in the Institute, it could not be followed up. This year might be another story.

Censure

On 10 March, then Councillors Roger Henley VK2ZIG and Cesar Miranda VK2TCM sent a letter to all other Divisional Presidents and Secretaries, and WIA Federal President and Secretary. It was on Divisional letterhead and contained information about the result of the February EGM. The last paragraph urged other Divisions to instruct their Federal Councillors not to take any decisions "involving Roger Harrison's family companies". NSW Divisional letterhead was used without the knowledge or approval of Council or the Secretary and breaches the Corporations Law. The content has possible defamatory imputations, and other ramifications.

A reply from Federal President Kevin Olds and Federal Secretary Bruce Thorne confirmed that neither Roger Harrison nor his "family companies" were involved in any dealings with WIA Federal, nor being considered in any way. The suggestion implied in Henley and Miranda's letter was that there may be some impropriety on Roger's part as he was both a Divisional Councillor and a Federal Councillor. A strong rebuff to the inferences in Henley and Miranda's letter was received from VK4, who also questioned the letter's propriety. A letter from VK3 questioned its propriety, sought advice as to its official status and would ignore it if not official correspondence. It seems the other Divisions have treated their letter with the ignore it deserved.

As a result of their actions, and following advice from Divisional solicitor David Lewarne, at its 5 April meeting, Council passed this motion: "That this Council record its censure, in the strongest terms of the actions of Councillors Cesar Miranda and Roger Henley in composing and posting the letter (of 10 March 1994), in contravention of their duty as Directors of the Division, in contravention of their duty to the Council and the Division, in contravention of the interests of the Division, and in bringing the good name and reputation of the Division, the Secretary Roger Harrison, his family business and by association his wife Val Bergman-Harrison, into question and that this censure be conveyed to all recipients of their letter....be broadcast on the Division's Sunday broadcasts on 10 April 1994 and to all members via the VK2 Notes in May Amateur Radio magazine." Precipitous action based on wild rumour doesn't pay.

VK3 Notes

Barry Wilton VK3XV

Special Projects — Financial Assistance

In 1989 WIA Victoria commenced a program designed to ensure future financial stability, through professional management of our resources.

This has been achieved and Council is now committed to the upgrading of membership services.

It is difficult to attain this goal without significantly increasing labour costs, and suitably qualified volunteers are simply not available.

A greater level of participation by the membership will be necessary if we are

to benefit from the gains made during the past few years, and to facilitate and encourage this a "SPECIAL PROJECTS FUND" has been established.

This fund will be financed by utilising portion of our accumulated profits reserve.

WIA Victoria may assist with part, or in some instances full, financial support for specific projects or developmental work which is of direct benefit to WIA Victoria members and/or to the hobby of amateur radio in this state.

Applications for financial assistance from affiliated clubs, groups, and individual members will be considered on their merit by Council and will be required to meet specified criteria.

Further information and details of the criteria can be obtained by contacting the WIA Victoria Secretary — Manager.

New Federal Councillor

Alan Noble VK3BBM, has been appointed as Federal Councillor for the Victorian Division.

Alan's appointment follows the retirement of Peter Maclellan VK3BWD, who has given the Division exceptional service for a number of years, and for which we are grateful.

The Division Council will continue to draw on Peter's experience and expertise, as he is expected to remain on the team for some time as an Alternate Councillor.

Bill Trigg VK3JTW, will also play a major role in the policy area, as an Alternate Councillor assisting Alan.

Alan has a broad depth of knowledge and has previously served as a Federal Councillor as well as being an ex President of the Division.

5/8 Wave — VK5 & VK8 Notes

Rowland Bruce VK5OU

You no sooner pass on the latest information, and see it published, than the situation changes and you end up looking silly. Sorry, folks, but nevertheless I am happy to say that the Equipment Supplies Committee will be attending all general meetings after all. Thanks to the Elizabeth ARC for picking up this very valuable service to members.

On the subject of ERC, please check the address when ordering by mail. The Marden PO Box is now closed.

I said last month that the Clubs' Convention had been a success. Next year the Council is planning to repeat the exercise on the first or second weekend in March. At this year's meeting Kingsley VK5AKN offered his services as the Morse Practice Coordinator. Council has confirmed him in this position and I guess we offer him both our congratulations and thanks. It is great to see non-metro members able to offer their services to the Division.

On country matters, it is timely to remind amateurs that the Riverland Convention at Renmark is being held on 21 May.

Welcome to another new member, J Scheiffers VK5NJO.

The May general meeting will be a Buy and Sell, again. The five Tuesday months seem to be prevalent this year! The June meeting will feature Mark Spooner VK5AVQ presenting "Communications in Antarctica". Should be very interesting. On his recent visit to the frozen south Mark became the first amateur to .... well, why not come to the meeting and hear first hand?

Further to articles recently on the various examination officers and venues, it is worth noting that Adelaide Hills, Elizabeth, and North-East Clubs can accommodate candidates in wheelchairs.

Publications has run out of the 1994 Call Book, but don't panic — Ian has more on order.

VK7 Notes

"QRM" News From the Tasmanian Division

Robin L Harwood VK7RH

The Annual General Meeting of the Tasmanian Division was held on 26 March 1994 at the Southern Branch Clubrooms on the Hobart Domain. There were

WIA News

Standard Sought On Insulating Oil Hazard

Oil-filled transformers and capacitors manufactured from the 1930s through the 1960s used oils containing polychlorinated biphenyls, or PCBs (not to be confused with printed circuit boards!).

PCBs were used for their good insulating properties and as a flame retardant, and were widely used around the world, including Australia, particularly in the power transmission industry.

Power factor correction capacitors, for example, widely used in fluorescent lighting installations in that era, used PCB-laced oils.

From the late 1960s and particularly the early 1970s, concerns over serious health risks associated with PCB oils brought about a rapid decline in their use.

While active use of PCBs has been almost nil for some years, according to Standards Australia, the incidence of PCBs is still significant, owing to both unintentional contamination and residue from previous use of PCB oils. There are also many remaining devices filled with PCBs and yet to be drained, particularly in power supply and transmission applications.

Standards Australia has a committee, EL/8, which has developed standards on insulating oils, and is working on a new Australian standard for the measurement of PCB contamination in insulating oils.

There is currently no Australian standard which details appropriate methods for testing levels of PCB contamination in insulating oils, and "acceptable" levels of PCBs permitted in given situations have not yet been set.

A joint Australian/New Zealand standard is to be developed aiming, among other things, to detect levels of PCB contamination down to one or two parts per million. A draft for public comment is timetabled to be ready late this year.

As many amateurs acquire, or may have acquired, equipment manufactured between the 1930s and early 1970s, components of which may use insulating oils containing PCBs (particularly oil-filled capacitors and transformers) the health hazards of PCBs and their safe disposal are issues of concern to the amateur community as well as the electrical engineering and manufacturing industry.

approximately 30 in attendance. Andrew VK7GL, the Divisional President, chaired the meeting. After the various reports were read, the following individuals were appointed to fill the following positions:

Patron	Col VK7LZ
QSL Bureau	Charles VK7PP
Federal Councillor	Jim VK7FJ
Broadcast Officer	John VK7JK
"QRM" Editor	Robin VK7RH
Hon Solicitor	Phil VK7ZAX
Awards Manager	Phil VK7PU
VK7 WICEN Co-ordinator	Tony VK7AX
IARUMS Co-ordinator	Robin VK7RH

There were two retirements from Divisional ranks, namely Andrew VK7KAP, as FTAC Representative, and Bob VK7NBF as Awards Manager. On behalf of the Tasmanian Division I would like to express our appreciation to both for their invaluable contribution to amateur radio in VK7. Andrew has stepped down to work and family commitments. Bob, who has done sterling work administering the Divisional Awards, particularly the famous "Tassie Devil Award", has decided to step aside due to ill health and we do sincerely hope that you will be back into full swing very quickly, Bob.

There was no need for an election for Divisional Council as the required number of nominations had been received. After the conclusion of the AGM the Divisional Council had a short session, and the office-holders were elected as follows:

President	Andrew VK7GL
Vice-Presidents	Barry VK7BE
	Phil VK7PU
Secretary	Ted VK7EB
Treasurer	Phil VK7PU
Assistant Secretary	Robin VK7RH
Assistant Treasurer	Tony VK7AX
Councillor	Bill VK7JWR
Councillor	John VK7JK

We would like to express our thanks to the retiring members of Council, Frank VK7ZMF, Clarrie VK7HC and especially Peter VK7ZPK for their invaluable contribution to the Tasmanian Division. Peter has been our Divisional Treasurer for many years and now finds it too difficult due to interstate work commitments to fulfil this role. I know that it will be a hard act to follow, but we will try our best.

The "Spirit of Tasmania" Award has at last been finalised after a few hiccups and should be soon dispatched to recipients. Thank you for being so patient but it was out of our control.

Congratulations to Tom VK7AL who celebrated the 60th anniversary of receiving his ham licence on 6 April. He has not been in the best of health of late, but still retains his interest in the hobby.

There are two concerns that worry your Divisional council at present. Firstly, is the prospect of annual fees being levied on several Divisional Repeaters by the Site owners, eg CAA and/or National Transmission Authority. These, although reduced from commercial services, are still beyond the reach of the Division. This is being studied in detail to see what can be done. Secondly, the appearance of unlicensed operators on the Northwest coast using dual band handhelds to conduct questionable traffic. They have been noted using the VK7RMD UHF Repeater and have been challenged on-air. Not only have they antagonised the amateurs by their behaviour, but have also upset the HF and UHF CBRS users in the area. Reports have been sent to the appropriate authorities.

Don't forget that if you are interstate and wish to catch up with news from VK7, a 20 metre relay of VK7WI can be heard on 14.130 MHz at 0930 hours EAST. This is in addition to the Tuesday night rebroadcast on 3.590 MHz at 1930 EAST, prior to the "Tassie Devil" Net. As well, the Northern Branch station has news from the Northern half of VK7, on the first, third and fourth Wednesdays of the month, also on 3.590 MHz from 1930 and 2000 EAST.

Meetings for the month of May are as follows:

Southern Branch — Wednesday 4th May 1994 at Domain Centre

Northwestern Branch — Tuesday 10th May at Penguin High School

Northern Branch — Wednesday 11th May at Launceston Institute of TAFE Alanvale campus, Block "C".

All commence at 7:30 pm.

In conclusion, if you have any news for inclusion please contact me at 52 Connaught Crescent, West Launceston, TAS 7250 or via VK7RH @ VK7BBS by the last Monday of the month.

How's DX

*Stephen Pall VK2PS**

The big debate is on about the projected timing of the next solar minimum, the date at which the current Cycle 22 ends and Cycle 23 begins. The Australian IPS Radio and Space Services quotes four well known scientists who, as scientists usually do, agree to disagree on the timing of the ending of the present cycle.

Patrick McIntosh, a scientist at the Space Environment Laboratory in Boulder, USA, thinks that the date of the coming sunspot minimum will be in the last quarter of 1995, resulting in a 9 year length to the cycle. Peter Taylor, from the American Association of Variable Star Observers, thinks that the minimum should occur sometime during the first portion of 1996. According to this scenario, Cycle 22 will be the third shortest on record, about 9.5 years in length. Andre Koecklenbergh, from the Sunspot Index Data Centre in Belgium, quotes four possible dates, based on four different methods of approach to the problem. His predictions are for a minimum in August 1994, or April 1995 or December 1995 or finally in March 1996.

Richard Thompson, a scientist at IPS Radio and Space Services, says that some features of Cycle 22 suggest that the cycle is running faster than 10 years. The decline of Cycle 22 has been rapid and is between three and eight months ahead of the corresponding declines of Cycles 18, 19 and 21. This supports the idea of an early solar minimum in the first half of 1996. However, there is an outside chance that it might occur even earlier, perhaps late 1995, giving Cycle 22 yet another distinction as one of the shortest on record.

Cheyne Island — VK6CHI — IOTA OC-193

Mal VK6LC, the well known West Australian DXpeditioner, was on his seventh DXpedition between 16 and 23 of March 1994 for the Islands on the Air (IOTA) program. His target was Cheyne island (34° 35' 30" East and 118° 46' 30" South) off Cape Riche, approximately 100 km east-north-east of the City of Albany (in VK6) and about 2.5 km off the mainland between Bremer Bay and Albany. The island is 3 km long and 1 km wide.

It is a rock island uninhabited except for fairy penguins, seals, and various migratory birds. The island is a class "C" reserve and access is strictly restricted by the Department of Land and Conservation. The island lies close to the continental shelf and was used in the late 1920s and up to the early 1950s to spot whales as its highest point is about 30 metres above sea level. Cheyne Beach is a salmon netting area and the beach on the mainland is closed to the public during the salmon fishing season.

The official permit to land restricted the DXpedition's movements to a small beach section approximately 200 metres by 25 metres in area in the north west corner of the island. Mal and his co-partner in the

venture, Ron VK6LG, had a very busy time during the seven days on the rocky island. They had an operating tent of 4 x 4 metres and a sleeping tent of smaller dimension. The expedition operated in two shifts. Ron VK6LG was on the day shift which also included his early morning compulsory fishing for breakfast. Mal VK6LC was looking after the night shift. The station consisted of a TS-50 and a TS-130S transceiver with an FL2100Z linear amplifier, a three element monobander Yagi on 20 metres, a similar monobander on 15 metres, a multiband Butternut HF6 vertical antenna and two phased verticals on 40 metres. The antennas were tested prior to departure on Ron's farm and a proven configuration was worked out which resulted in both stations being on air simultaneously without QRM or intermodulation. Power was supplied by two 5 kVA petrol generators with voltage regulators.

The DXexpeditioners arrived on the island on 16 March and became active on 17 March. During the first three days they had poor openings to Europe and to the USA although conditions were better later. The main activity was on 40 metres and, despite the noisy band conditions, there were "dogpiles" some lasting six hours. Over 3000 QSOs were made, about 700 on 15 metres, 1300 on 20 metres and a little over 1000 on 40 metres.

The expedition worked all seven continents, over 100 countries and over 100 islands. There will be a special QSL card printed and the QSL Manager is Mal VK6LC. His address is M K Johnson, 9 Abinger Rd, Lynwood, WA 6317, Australia. Direct QSLing is the preferred option with an SASE for the VK contacts and an SAE and return postage for an overseas reply. Malcolm's DXpeditions are not sponsored and, to reply via the QSL bureau in VK6, cost 5 cents a card, an expensive proposition which will depend on availability of reserve funds.

Pratas and other Taiwanese Islands

As indicated in March *Amateur Radio* there was a second brief operation from Pratas Island. The island has been recognised in the IOTA program as AS-110, however, the DXCC still has not decided whether it will recognise it as a new country or not? Some more information is needed according to DXAC sources and the indecision, it seems, has not pleased a number of amateur groups, especially the Taiwanese.

The operation was in low key from 21 March to 25 March using the callsign BV0ARL/BV9P. Four bands were active, mostly in the SSB mode with a sprinkling of CW activity. Two groups of mostly Taiwanese operators were on their first DXpedition with very limited experience. Signals in Australia were very weak and only a handful of VKs were able to contact them as the Japanese amateurs, being much closer to the action, dominated the bandspace.

BV94ARL was active on 26/27 March during the CTARL annual general meeting from Taichung City, Taiwan. BO0K (note the new prefix) was operational from KIN-MEN Island from 2 to 5 April and finally BO0M was activated in April from Mazuo Island. QSL for all the above operations should be sent to CTARL, Box 93, Taipei 100, Taiwan, ROC.

Solitary Island VK4CRR/2 — IOTA OC-194

Our "island hopper" DXers were active also on the east coast of Australia. Bill VK4CRR, the well known DXer, was active as VK4CRR/2 from Solitary Island which is off the mainland near the town of Woolgoolga in NSW, in the Pacific Ocean. Bill started around 1200 UTC on 30 March and, after about 4500 QSOs, he packed his gear and left for home around 2100 UTC on Easter Sunday (local time), 3 April. QSL to VK4CRR, with an SAE and return postage, at 26 Iron St, Gympie, QLD, 4570 Australia.

Spratly Islands — 9M0A — IOTA AS-051

There was a short activity by a group of Malayan, Japanese and one UK amateur from Swallow Reef from 2 to 5 April. The signal was weak here in VK and poor propagation was not much of a help. They were active on all bands and modes including FM, RTTY, AMTOR, PACTOR and packet. QSL to JA9AG.

Future DX Activity

- The proposed DXpedition by the Oklahoma DX Association and others to Cocos Island, TI9, has been cancelled. Allegedly some Costa Rican DXers have threatened to force their radio society to discredit any TI9 trip that uses a QSL manager located in any country other than Costa Rica.
- Trindade Island (SA-010). PY1UP will be active as PY0TUP from April to August on all bands, CW and SSB.
- If you need Nigeria on CW try to work DL9GMM/5N0 on the 10-80 metre bands. He is working barefoot into wire antennas. QSL to his home call. He will leave Nigeria at the end of the year.
- Fred Lukas K1EFI will be active from Bermuda as K1EFI/VP9 from May 12-20. QSL to his home call.
- Paul F6EXV is still active in Rwanda until the end of May, using the callsign 9X5DX. QSL to F2VX.
- The opening of the Channel Tunnel between France and the United Kingdom will be celebrated by two special event stations GB0CT and TM5TSM and will be active on 6 and 7 May.
- YI0CW is active on 18075 kHz around 1400 UTC. QSL to SP5AUC.
- YR0DCF celebrates the 625th anniversary of the founding of the City of Braila in Romania. QSL to Y04DCF.
- Richard AH6IO will operate from Johnston Island as AH6IO/KH3 from 4 to 9 May on all bands. QSL direct only to his home call.

Interesting QSOs and QSL Information

- JH1KSB/JD1 — Fuku — 14042 — CW — 0920 — March. QSL via the Bureau.
- S51VO — Vlado — 14040 — CW — 0649 — March. QSL via the Bureau.
- 5R8DG — Geo — 14029 — CW — 1142 — Feb. QSL to F6FNU, Antoine Baldeck, BP14, F-91291 — Arpajon Cedex France.
- V44KAI — Joel — 7004 — CW — 1113 — Feb. QSL to Trevor J Liburd, Ponds Pasture, St Kitts, Caribbean.
- 5X1F — Sam — 14243 — SSB — 0651 March. QSL to WB1DQC, Peter R D

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No complicated menus - uses function keys
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See review in AR, July 1993
$50 (delivered in VK)
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Orders to: Philip Rayner (VK1PJ)
33 Willoughby Cres, Gilmore ACT 2905
Include disk size

Munroe, 41 Cheryl Ln, Holliston, MA-01746, USA.

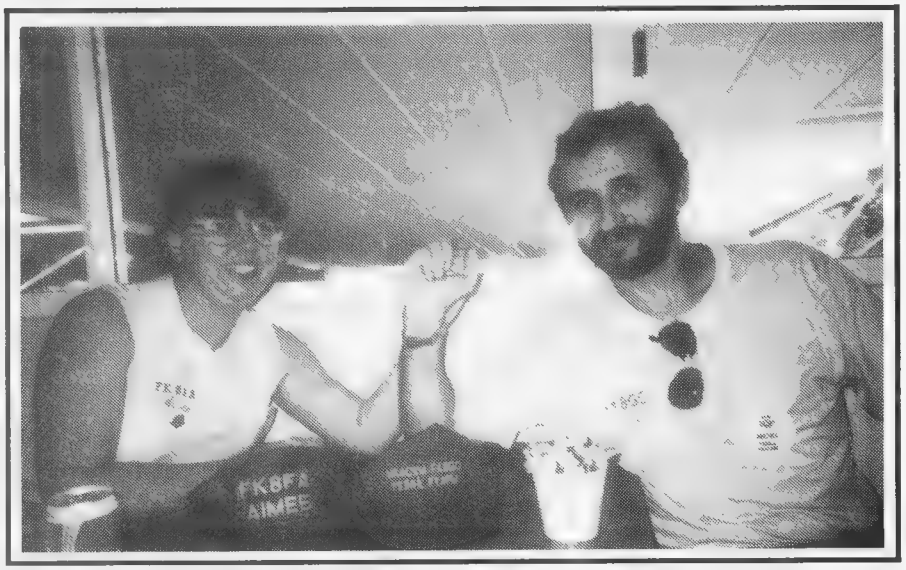
- VP5JM — Jodie — 7083 — SSB — 1121 — March. QSL to W3HNK, Joe Arcure, Jr, PO Box 73, Edgemont, PA 19028, USA.
- FS5PL — Lionel — 14260 — SSB — 0629 — Apr. QSL to FG5BG, Georges Santalikan, 44 Rue Amedee, Fengarol, Brest, F-97130, Capesterre Belle Eau, Guadelope, France.
- KP2AD — Lubos — 3797 — SSB — 1017 — Apr. QSL to Lubos P Sudek, PO Box 2611, Charlotte Amalie, VI 00801, Virgin Islands, USA.
- XX9TZ — 21025 — CW — 2338 — Apr. QSL to KU9C, Steven M Wheatley, PO Box 5953, Parsipanny, NJ 07054, USA.
- T97T — Nedim — 14186 — SSB — 0612 — Mar. QSL to SM5AQD, Hakan Erikson, Svanv 6, S-61162 Nykoping, Sweden.

From Here There and Everywhere

- Tom, BA4AC has given some new information regarding the mainland China prefixes. There are eight kinds of prefixes. BY (Club stations), BZ (individual callsigns to be used from Club stations), BA, BD, and BG (individual callsigns to use at own station, first, second and third class licence respectively). BG is also allocated to listeners who have 4th class licences. BT is used for special stations and BW will be used for visitors. B is used on 144 MHz for Club and individual stations.
- Do you remember the first balloon crossing across Australia by Dick Smith in June 1993? Dick's story, well illustrated, has appeared in the Australian Geographic's April-June 1994 issue. The Wireless Institute of Australia and Australian radio amateurs were given special mention in the article, which is recommended for reading. Try your local library for a copy.
- Alan VK4AAR kindly supplied some information about the new structure of the Croatian prefixes and suffixes. The old Yugoslav prefixes have been changed as follows: YU2 became 9A2, YT2 is now 9A3 and 4N2 changed to 9A4. Club stations now have the 9A1 prefix, whilst the 9A6 and 9A7 prefix is used only on VHF bands. Croatia has kept all the old suffixes, therefore 4N2AA became 9A4AA. The situation is different in Slovenia. The old YT3, YU3 and YZ3 prefixes were replaced with the S5 prefix and completely new suffixes were allocated. The 1994 "International Callbook" carries the full range of the new Slovenian callsigns.
- If you want to be a successful DXer you have to start at an early age. Jason AB5LX had an exciting time in the middle of March working all the stations, among them many VKs and ZLs on the "222" net. The interesting part is not that Jason has an extra class licence, but that he is only 11 years old and handled the calls like an experienced "old salt".
- As with many of us, I also received a great number of SWL cards from the former Soviet Union in years gone by, and I always gave the sender of the cards the courtesy of replying with one of my cards. In March this year I received a letter postmarked 15 November 1993 from Alexey UA4-148-807 thanking me for the first DX card from Australia. Alexey is a high school student who wants to improve his English by having penfriends in many parts of the world (he wrote a quite satisfactory letter with the help of a dictionary). He asked me *"..could you find me a penfriend of my age (I am 16 years old) in your town. I would rather (prefer) a girl"*. Well here is the challenge to readers of this column who have a family with teenagers. Wonderful opportunity to spread the goodwill and the international friendship around the world. I sincerely hope that at least one family will take up the challenge. You can reach Alexey by writing to Alexey Vlaskin, Box 2063, Penza, 440061, Russia.
- Are you still waiting for your card from Romeo for his Afghanistan DXpedition in Dec 1991? After many unsuccessful attempts I received my card from W8BLA (Verne E Fowler, 11315 Stroup Road, Roswell, Georgia, 30075-225 USA), who says that he is the QSL manager for the following DX stations: IS0RR, YA0RR (both expeditions), ZF1CQ, ZF2QP and ZF1A. He has no logs yet for the XY0RR expedition, but he is still trying to get it.
- Heard a VK2 operator conduct a lengthy "chit chat" QSO in the middle of the very busy DX band with a Sicilian station. The Italian was politely replying to all the questions about the weather, details of his station, his family and the local time but indicated that he was in a hurry to go to work. He also said that he would appreciate a QSL card from the VK2. This is the verbatim reply from the VK2 amateur *"Sorry OM I do not QSL, but anyhow I am interested in what kind of work you do"*. Any comment?
- We know many stories about the expensive postage rates in Germany. Harald DJ3AS was kind enough to send me the latest booklet about the German postage rates. The local letter in Germany costs DM1.00 which is approx 85 cents Australian. For mail outside Germany there are two delivery areas with two tariffs. One delivery area is called"Europe" (which includes all the CIS states of the former Soviet Union, all the French overseas departments, plus the Portugese, Spanish and Danish dependencies). The other delivery area is "the rest of the World". Australia, NZ, USA, etc fall into this category. A standard overseas airmail letter up to 20 gm costs DM3.00 which is approx AUS$2.54, therefore one US "greenstamp" is not enough for an airmail reply. The German Post Office will pay only a flat rate of DM2.00 for an IRC which value is at variance with the definition by the International Postal Union of an airmail reply postage. The answer is plain mathematics. If you want a direct airmail reply from Germany you have to send either two "greenstamps" or two IRCs. This is also the reason that DX QSL cards originating from Germany very often are posted from the neighbouring Czech Republic, where the postage is still cheaper.
- Richard VK1RJ advised me on behalf of Derrick VK1NR as follows: Derrick is being bothered by the activities of an alleged "slim" operating with the callsign SU1DX and giving Derrick's name and call as his QSL manager. As a result of this annoying action Derrick is receiving a fair amount of mail asking for QSL cards. Derrick's health is no longer 100% and he is concerned that he cannot respond to all these letters. The VK1 Division of the WIA tries to send a "negative" reply to the QSL requests. Please note VK1NR is not the QSL manager for anybody.
- Talking about QSL cards. Neil VK6NE Federal QSL Manager for the VK9 and VK0 call areas, advises that the following do not collect Bureau cards: VK9NS, VK9NL, VK9ND, VK9NI and VK9NP.
- Do you remember "Yvonne" the "slim" masquerading as VR8B? It appears that there is now a very good CW operator from the direction of east who calls herself "Chloe" and appears on the edge of the 14 MHz CW band as ZK2DX. Chloe sends many 88s to her QSO partners and asks that QSLs to be sent to the ZL QSL bureau. "Chloe" ignored calls from VK.
- It was reported that Eva PY2PE, who was a well known DXer especially in French circles, is now a silent key.
- George TU2QW closed his station on

2 April and is going back to France. QSL to F6EXQ.

- The following countries restrict forwarding QSLs only to members of that country's national amateur radio organisation: Egypt, France, Germany, Japan, Monaco, Morocco and Portugal.
- The new prefix of Penguin Islands, following their transfer to Namibia, is reported to be V59.
- Russia has discontinued issuing the RV7 prefix to foreign visitors. Only three calls were issued: RV7AA, RV7AB and RV7AD.
- The station T33CW, which was active in February and asking that QSL cards to be sent to OH3JA, was a pirate. Don't QSL.
- As reported by Fred K3ZO, Shane BV2FA, who is well known to VK/ZL DXers, is the editor of the Amateur Radio Magazine in Taiwan. He says that there are 1381 licensed amateurs in Taiwan. Remember 4-5 years back when there were only a few? There is only one class of licence, therefore all of them have HF privileges. The annual licence test will take place this year in April or May.
- The St Peter and St Paul Rocks DXpedition was terminated after a few days of operation because of generator trouble.
- The Bangladeshi S21Z series of callsigns which were reserved for foreign operators have already been used up so the authorities have begun to use the S21Y series to be issued to foreigners.
- Carlos TI2CF and Jose TI2JJP were active as TI9CF and TI9JJP for about one week ending on 20 March. TI2CF is a reliable QSLer, however many amateurs did not receive their card from TI9JJP's previous activity from Cocos Island. QSL routes: TI9CF via TI2CF and TI9JJP via TI2AOC.
- The rumour that the mainland Chinese radio amateurs are in "trouble" is nothing else but a rumour based on an incorrect interpretation of a news item by the Voice of America (VOA). It seems that a group of SWLs (you need a licence in China to be an SWL) and possibly a number of "illegal" CBers caused havoc on some radio channels and, as a consequence, there was some police action in Henan Province (BY6).
- It was reported that Achmed 7O1AA was active on various nets. His address was given as Achmed Nater, PO Box 4858, Aden, Yemen.
- Romeo was also reported as working on the 40 and 80 metre bands as 3V8RR causing big pile-ups in Europe.



Aimee FK8FA and Michel FK8GO at the Gosford Field Day.

- The Gosford Field Day is a meeting place not only for local and interstate amateurs, flea market bargain hunters, clubs, and the commercial communication outlets connected with amateur radio, but also a meeting place for those whose main activity is DXing on the HF-bands. It was therefore a real surprise and pleasure to meet two well known DXers from French Caledonia, Aimee FK8FA also known as FY4FC, F5NIY and VK4CTA and Michel FK8GO also known as FY4FM, F5NHL and VK4CTA. Aimee and Michel were en route for a holiday in Queensland and they decided to drop in at Wyong NSW to have a "good look" at the Gosford Field Day. Later they reported that their stay on the Gold Coast was a "rainy" one. Better luck next time.

QSLs Received

4K4POL/A (2M via UA0KCL) — 9K2ZZ (2W via W8CNL) — E2OAT (2W via HS1HSJ) — 9Y4VU (2W via W3EVW) — UJ8JMM (3W via DL8WW) — YA0RR (3W via W8BLA) — SU2MT (3M op).

Thankyou

Many thanks to those who kept me informed but especially to VK1FF, VK1RJ, VK3DSL, VK2KCP, VK2KFU, VK4AAR, VK6LC, FK8FA, FK8GO and W8BLA. A special word of thanks also to the following publications: QRZ DZ, The DX Bulletin, DX News Sheet and the W6GO/K6HHD list.

PO Box 93, Dural, NSW 2158

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International Amateur Radio Union Monitoring Service (IARUMS) — Intruder Watch

*Gordon Loveday VK4KAL**

Did you know that as far back as the 1950s, the original concept of the Intruder Watch was put forward by the RSGB? So it may be time to revitalise the IW. This has happened to some degree in the USA with their AIRS (International Reporting System).

I hope you are aware that we must not take our privileges and rights for granted, a fact too often learned the hard way. They must always be vigilantly protected and guarded, lest they be usurped by others.

We are all aware of the WARC meetings, but did you know that "loop holes" appear in the frequency allocations. Any government may assign any frequency to any radio service, so long as such stations operating "out of band" DO NOT CAUSE HARMFUL INTERFERENCE, to stations of other countries operating within the agreed regulations. This means that before any action can be taken against these "intruders" two conditions must be met: (a) Harmful interference must exist; and (b) Someone must complain.

It MUST be the users of the spectrum that complain, not simply a monitoring

service. The monitoring service coordinates these complaints with those of other regions. If there are no complaints from such users, the intruder may be considered to be operating quite legally. Now do you see why we must have a solid observer corps?

Our observations from all states in Australia are forwarded to the SMA for verification. They then take the necessary steps, as they see fit, to remove the offender. Also, the summary of observations goes to the Region 3 coordinator for inclusion in the worldwide monitoring system, which has its own method of dealing with offending administrations. A few may question the need for our vigilance but it would be far worse if we "rolled over and played dead".

How do we revitalise the Intruder Watch? The most sensible way seems to be a marked increase in observers. It should be the duty of all radio amateurs to maintain a close check on all forms of harmful interference on our bands, not just intruders. We welcome shortwave listeners (SWLs). We also would like to see more activity on the 10 metre band which, for some time now, has been invaded by CB operators from Thailand, from 28.060 to 29.450 MHz. These intruder signals come into my QTH at S 9+ on an 18 hour basis.

When did you last use 10 metres? It is not dead all the time. Have a listen and call CQ, do not go to sleep. I've had some rare surprises on a "dead" band. Maybe you deserve to lose it, but don't whine if you do!

The primary frequency list for May — 7048/9, 14094, 21314 kHz. I do not require input before the end of May.

Secondary frequencies you may like to look at include 7085, 18125, 14030, 14065, 14093, 14100, 14141.5, 14170.5, 14205, 14211, 14212, 14240, 14279.5, 14125. For those with SITOR (Mode F1BCN) 7000, 14078, 18101.5, 18167.7, 21131.7, 21432.

Check each day, at least once and more if possible, as the pattern of operation may change. The secondary frequencies are preferred ones, check each alternate day. If observed, include in the log sheet, otherwise keep for further observation, as with all other frequencies.

Federal Intruder Watch Co-Ordinator, Freepost No 4 Rubyvale QLD 4702 or VK4KAL@VK4UN-1

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Remember to leave a three second break between overs when using a repeater.

Packet World

*Grant Willis VK5ZWI**

Introduction

Welcome to *Packet World.* Due to work commitments Warren VK1XWT has asked me to lend a hand in producing a packet radio column for *Amateur Radio* magazine. I hope that people find some of the things I intend to include over coming months useful and informative.

The world of packet radio is one of the fastest growing aspects of our hobby. More and more amateurs are dusting off their computers or terminals, obtaining packet modems and taking a look at what all those weird and wonderful beeps and gurgles are down around 144 and 147 MHz. The aim of this column is to provide a source of up to date news on the packet scene in Australia as well as occasional reference material useful to the packet operator. I also plan to produce a series of feature articles on various aspects of packet radio to complement the column over the coming year covering everything from setting up a station, to how AX.25 works, using a BBS station and setting up a TCP/IP network node and high speed links.

The world of packet radio is a very diverse and exciting one. I hope I can share with you some of the things that are happening and perhaps enthuse more people to take a look and become active in this mode. Packet, I believe, is one of the Amateur Operator's most powerful information tools available to us. Its correct use could prove a tremendous benefit to the hobby as a whole.

Getting Started on Packet — Where to get Help

One good place to start finding out about packet radio is your local radio club. More often than not someone will be able to help you get started. In South Australia, to help this process along, a packet help guide called "The Hitch Hikers Guide to Packet Radio in South Australia (2nd Ed)" has been produced. This booklet is a comprehensive guide to operating a packet radio station covering things like:

- Setting up a Packet Station
- Using a BBS station
- Sending and Receiving Packet Mail and Bulletins
- Retrieving Computer Programs and Information files
- Using various Packet Radio networking tools (eg Rose, NET/ROM, TCP/IP)
- An Introduction to Satellite Based Packet Radio.

Full descriptions of the commands commonly encountered are given as well as using various mail servers and databases.

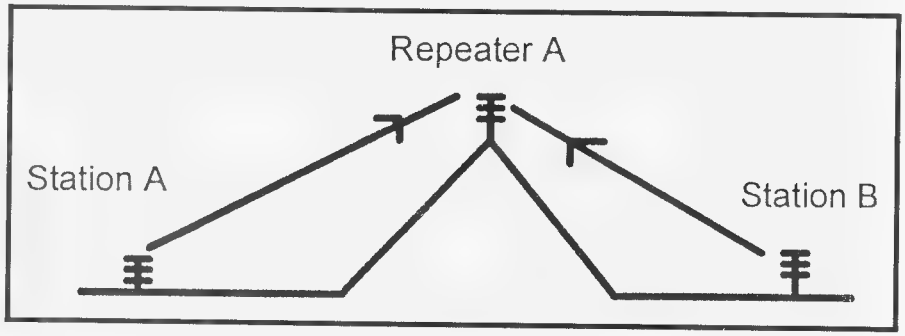
While this booklet has a bias towards South Australian packet network conditions and services, most of the information is generic and could apply to anywhere in Australia. It is the ideal guide book or reference manual for packet operators. Copies are already beginning to circulate nationally through some of the major packet organisations in each state. If you would like to obtain a copy you can write to:

Hitch Hikers Guide to Packet Radio
C/O South Coast ARC Inc
PO Box 333
Morphett Vale, South Australia 5162

The cost is $15 plus $5 postage and packing. Cheques or Money Orders can be made payable to the South Coast Amateur Radio Club. There are bulk order discounts available for clubs. For more details on these contact the South Coast ARC at the above address.

Packet Repeaters — a Different Approach

One of the major problems many packet repeaters face around the country is "hidden transmitter syndrome". This is the single most prominent cause for congestion on the simplex packet networks that currently exist around the



world. Worse still, many repeaters are often sited on high hills or mountains where they can hear over a wide area many stations that can't hear each other. The problem then arises that active stations can't detect when the channel is being used by someone else.

In the diagram this is demonstrated where station A and B are on opposite sides of a hill and can't hear each other but Repeater A can hear both of them. Station A and B can transmit at the same time because they won't know that the channel is in use. At the repeater what happens is that the STRONGEST signal wins and will be the signal the repeater acts on.

To overcome the problem, one solution is to have the repeater retransmit everything it hears simultaneously on another channel, exactly the same as a voice repeater. This can be further improved by having a pair of modems, one connected to the repeater receiver and one to the transmitter to decode the bits and regenerate these before sending them. This is done on a bit-by-bit basis, unlike a digipeater which performs this frame by frame. Connecting to someone through the repeater would look no different to connecting to them direct. You would not use a "Digipeater" type connection, nor even a NET/ROM or Rose connection to connect to someone who was on the same repeater as you were.

These repeaters also are able to have a TNC interfaced to them allowing them to be connected to other networks and links. You could talk to the repeater TNC for network facilities. The major advantage is that this type of repeater (known as a regenerative data repeater) removes all hidden transmitters. All stations access the repeater in "Simplex" mode with a transmit offset (the same as a voice repeater). The only station that has to transmit and receive at the same time is the repeater. This really is an effective way of delivering a wide area repeater system with none of the drawbacks of putting simplex packet repeaters on top of mountains or requiring users to be capable of full duplex. It is an even better idea for higher speed user services.

In Australia there are currently no packet repeaters operating this way, although the current 70 cm packet band plan does have support for such repeaters. More needs to be done, however, to ensure there is room to implement these regenerative repeaters in the 70 cm band. To that end I am preparing in conjunction with 5TAC and the WIA a proposal for extension of the packet band plans. More about this next month.

The Packet Doctor

This small corner of the column is intended to be something of an information and help desk for newcomers to packet radio. I invite readers to send in particular packet related questions they might have. I intend to look over the questions received each month and answer some of these in the column. The address to send your queries to is:

The Packet Doctor
C/O WIA SA Div
GPO Box 1234
Adelaide, SA 5001

Conclusion

Well that's all for this month. I hope to have more news on packet radio from around the continent next issue. If your local packet group is experimenting with something or perhaps you might like to send in some news on what is happening on packet in your area then why not send it to me. I can be reached on packet radio via VK5ZWI @ VK5TTY.#ADL.#SA.AUS.OC

**C/o WIA SA Div, GPO Box 1234 Adelaide 5001*

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Pounding Brass

*Stephen P Smith VK2SPS**

During the last couple of weeks my on-air operating has come to a screeching halt due to a number of projects I have been involved with. I am currently restoring a recently acquired Army MK5 Field Telephone/Morse set and a Japanese Navy key. Both are presently in bits down in the workshop but are coming along nicely.

Before I continue with this series I would like to take this opportunity and thank every one who contributed to it. The response to my appeals for help was terrific.

I will now deal with Morse code practice nets, catering for the beginner to advanced level. I have attempted to include all the Morse practice nets on frequency to date but, alas, with new clubs starting up and some clubs changing formats slightly, I apologise if you are not included.

I have received a number of interesting letters from readers requesting information on radio nets so I will explain basically what a net is and how it is run. It doesn't matter if it's SSB or CW, they usually follow the same guide lines (this may seem like sucking eggs to quite a few so please bear with me).

The definition of net as described in the Standard English Dictionary is *Broadcasting system of several stations linked together.* In layman's terms, it is a number of amateur operators ranging in number from three (3) to over twenty (20), with the sole purpose of communicating with one another, whether it be local stations or DX. (Just imagine if everyone tried to communicate at the same time. "QRM Heaven".)

What's required is some sort of control. This is where the "Net Control Station" comes in, or NCS for short. His/her role is to control proceedings making sure nobody calls out of turn. Each net operates on a certain frequency at a particular time depending on the day or evening as the case may be.

"Check In" is a term used to join the net. When you have checked into the net the NCS will log your call and he may ask for your name which will be added to his list of operators. When the NCS is satisfied he has enough operators, he will commence proceedings. Depending on the net, the NCS will stop the proceedings every 10 minutes or so whilst asking for any more "Check Ins". He will normally do this until no more check ins are accepted.

It is a good idea, if you intend to join a net, to check in early. Sometimes the NCS reads out the operators callsigns from his list, letting late comers to the net know who is on frequency. Depending on how many stations are on the net you may have to wait several minutes for your turn to transmit.

When your turn arrives the NCS will ask you to make a call. For example, you require to work a 5A station. You call this station and he acknowledges, then you both pass RS(T) and name, keeping it short so as the others on the net can have their go. When you have exchanged information you pass it back to the NCS who will then call in the next station on the list and so on until everyone has made their call.

If it is a local net the overs could be of longer duration. To leave the net all you have to do is get the attention of the NCS and tell him you are going "QRT". It's as easy as that.

We know the Q code is used in CW to cut down transmission time and to help with the passage of information during a contact. Well, there is a special Q-code used in net operations which I will mention in another series as the nets described here are Morse Practice Nets and don't contain the need for this special type of Q code. You should also be aware that not all nets operate the same way. For example, one particular net on 80 metres starts on SSB and switches to CW where a passage of about 5 minutes duration is sent, then switches back to SSB where the message is read back to all concerned and any corrections made.

This concludes net operations, I hope I have answered most of your questions. Remember, listen in on the net first and find out how it is run, how check ins, etc, take place. Then when you feel confident, give it a go. You will find the majority of nets will give you a helping hand when they know you are new to net operations.

Down to business, the first practice net we will look at is in VK6. The WIA WA Division presently run two practice nets. The first is on VK6RAP, which is the VHF net on 146.700 in the 2 metre band. VK6RAP is the channel 2 repeater in Perth. Its coverage is around 160-200 km under good conditions, and the session commences at 1930 hrs local time and runs for about 45 minutes.

The second session, which is VK6WIA, is run on a frequency of 3.555 MHz in the 80 metre band, also in the evening with a starting time of 1200 UTC. The sessions go to air every night of the week except Saturdays. The team consists of approximately 16 operators who donate their free time in the running of these nets which is on a rostered basis with two operators on each evening, one on HF and the other on VHF.

The session consists of pre-recorded tapes. The tapes consist of Morse text, each text having plain language and numbers or alpha numeric groups. These texts run for around 5-6 minutes with each text getting faster and so on. Generally the speed format is roughly Text 1 around 5 WPM, 2 around 7-8 WPM, 3 around 10-11 WPM, and so on up to around 16-18 WPM.

They also run about 5-6 texts on the VHF session and about 8 texts on the HF session. After each text has been sent the operator reads back on SSB what has been sent. They have over 150 pre-recorded tapes and each tape has two sides with each side containing a different set of texts.

They have an extensive library of recordings which are shuffled about between operators and the library is continually being added to.

At the end of each session, after the last text has been read out, the operator calls other operators, who have been listening, to call in on either the key or SSB and make comments on the session. The call back is a good way to gauge the number of novices using the session, and to answer any questions they might have.

These sessions also attract numerous full call operators who help and support novices on their way to full call status. Also it keeps their "ears in" if they can't get to a key often. Punctuation is added to text of 12 WPM and over to cater for more competent enthusiasts.

As far as the history of the broadcast goes, I am led to believe it was started by Jack Sweeney and the session later continued by the late Cyril Rutledge VK6CR who, for many years, operated the session by himself.

Later the coordinator was Mal Johnson VK6LC who put the session into its present format with a roster of volunteers who have successfully continued to present the program each night. Phil Bussanich VK6SO took over from Mal in 1990 as coordinator.

Next month we will look at South Australian and Victorian nets.

PO Box 361 Mona Vale NSW 2103

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Over to You — Members' Opinions

All letters from members will be considered for publication, but must be less than 300 words. The WIA accepts no responsibility for opinions expressed by correspondents.

Sixty Second Club

A few words on why a few VKs found it necessary to form a group known as the "60 Second Club", and its success.

Just on 20 years ago, on their retirement, Ed W6SHW (recent Silent Key) and Jack VK2APT began daily contacts on 14.237 MHz. Ed, with his outstanding signal, was copied all over VK and the Pacific Islands and our daily contacts became the target for many breakers. Some wanted just a report from Ed, while others wished to comment on the subject in hand.

A small group of regulars joined us each day and, as they included some of the biggest signals out of VK, this made our round table a target for breakers from the USA. Unfortunately, due to skip, frequently Ed could not copy the USA stations and he would be left in complete silence, like a shag on a rock!

At times the breakers would transmit continuously for 10 minutes or more. Not being the most patient bloke in the world, Ed would break in, say he was going to bed, and sign out. Not wishing to lose my old mate I suggested a few rules for our round table:

1. All stations must use VOX;
2. No transmission to be longer than 60 seconds; and
3. No breaker to be invited to join unless he could copy, and be copied by, all stations.

All regulars agreed to these conditions and a very interesting and smooth operation eventuated. "Your turn", "my turn", etc does not apply and, as we are all on VOX, if you have something to say you just break in. If anyone tends to "run off at the mouth", he is told to "put a sock in it"! Regular identification is strictly observed and it all makes for an enjoyable round table. Unfortunately, the Silent Key syndrome keeps depleting our numbers.

Jack Trevena VK2APT
108 Ocean Parade
Dalmeny NSW 2546

Clerk Maxwell

I read with concern your editorial comment in *Amateur Radio* for April 1994 concerning the pioneers of wireless communication.

Perhaps in your future comments on this subject a reference to James Clerk Maxwell (1831-1879) would not go astray.

This 19th Century genius wrote in 1862 that *"...by a comparison of the electro-magnetic experiments of M M Kohlrausch and Weber with the velocity of light as found by M Fizeau, that the elasticity of the magnetic medium in air is the same as that of the luminiferous medium, if these two co-existent, co-extensive and equally elastic media are not rather one medium".*

Clerk Maxwell went on to say that the agreement between the figures of Kohlrausch and Weber and Fizeau was so good that *"we can scarcely avoid the inference that light consists in the transverse undulations of the same medium which is the cause of electric and magnetic phenonema".*

Maxwell read a memoir to the Royal Society in 1864 entitled "A Dynamical Theory of the Electro-Magnetic Field" and had twenty equations to prove it.

This surely was an incredible triumph for mathematics and the real start of the electronic age. I have found that very few younger people have ever heard of James Clerk Maxwell.

Ray Jones VK7RQ
314 Clarence Street
Howrah TAS 7018

(My list of pioneer names was not meant to be exhaustive, Ray. Clerk Maxwell deserves a book all to himself! Ed)

A Plea for Unity

The Amateur Radio Service (we sometimes forget that it is a service!) has suffered at irregular intervals from dramatic and bitter infighting. The most spectacular brouhahas, certainly the most fascinating and sad to read about, were

during the growing up period of the late 1920s and the early 1930s when many amateurs, mostly apparently well meaning, became involved in disputes which achieved little except damage to our service and to old friendships. We are fortunate that our Institute was lucky enough to survive.

One of our Divisions seems to be undergoing a similar travail. Perhaps it is none of the business of members of other Divisions but, as a member of another Division and as an amateur who knows something of previous problems, I have to make the obvious point that we do our Institute a sad disservice when we allow differences of philosophy or opinion to get out of hand.

I know no more of the present disputation than any other amateur who listens to the amateur bands. I am NOT, repeat NOT several times, writing as Federal Historian. I have deliberately refrained from writing this letter until after yesterday's annual general meeting in the Division concerned. But I make my faint cry of "enough" before we as a service make ourselves into a communications laughing stock.

I hope that reason has prevailed and that this letter loses its immediate point. I am sure that there are amateurs doing their best to resolve the problems, but we have a sad history of several episodes of conflict which cost us the respect that our voluntary service earned us. Could we all perhaps learn a little from the present, hopefully past, kerfuffle.

John Edmonds VK3ATG/AFU
RMD 9320 Willowite Road
Moriac VIC 3240.
ar

QSLs from the WIA Collection

Ken Matchett VK3TL Honorary Curator WIA QSL Collection*

Fire Fighting and Amateur Radio

G4LFB

The originator of this card was indeed fortunate in gaining the initials of the London Fire Brigade, LFB, as part of his own call-sign. Crude hand operated pumps were used to fight the disastrous Great Fire of London in 1666 but they were still supported by bucket brigades. It was not until about 1780 that the first body of fire fighters was formed in England. These men were drawn from the Thames watermen, the fire service having been organised not by government but from the first formed fire insurance office.

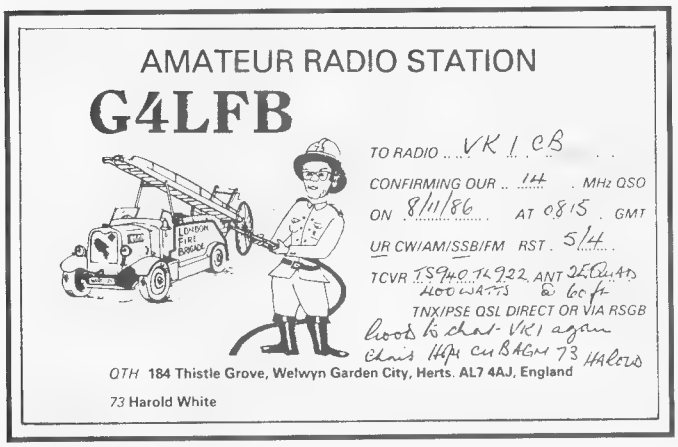
Of course, fire fighting dates back long before this, history recording that China had a fire organisation as early as 4000 BC, that of Egypt dating from about 2000 BC. By about 40 BC the Romans are said to have had a highly efficient fire brigade under the *praefectus vigilium* (prefect of the watch). However, it was the 19th Century that saw the development of steam-powered engines, the first probably used in London in 1829. Transportation of the fire engine to the fire itself remained a problem which was partly solved at least by the development of the steam-propelled vehicle that did not have to be dragged to the fire. The QSL shows a fairly old extension ladder attached to the vehicle. Such ladders first appeared in the 1870s and were used as a rescue device. It was many years later that ladders became part of the fire-fighting operation.

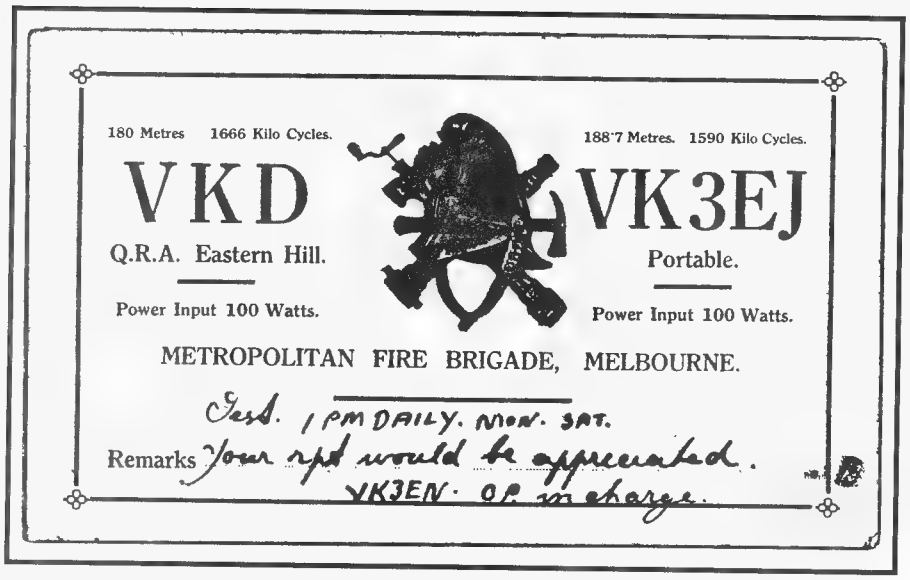
YU1AFQ

Like so many QSL cards of a thematic nature, those of fire-fighters often display their interest or profession. The QSL displayed, YU1AFQ, celebrates the centenary of the voluntary Fire Brigade "Matica" in Lemur, a suburb of Belgrade. It is an attractive card showing a fireman in action. Space does not permit any detailed treatment but the collection also contains thematic cards showing fire-fighting activities and equipment, some historical, including JH4HNJ (Shimane, Japan), JA1OVF (Ibaraki, Japan showing its first horse-drawn steam pump dated 1899), K2FD (New Jersey, complete with appropriate callsign suffix), W2CBS New York (a QSL from "Smoky Joe"), K6KZF (Santa Monica California firefighters showing an historic steam pump), G4WKD (Cheshire Fire Brigade showing horse-drawn fire vehicle), HB9CUK (Fire Brigade Zurich Airport), K1MRV (Chelsea, Mass. Fire Department), G0JWA (Derbyshire Fire Service Amateur Radio Society), ZS6AHE (Fire Station, Benoni, South Africa), WB8RPU (Delaware, Ohio Fire Department), K6THH (Oak View California showing a 1917 water tanker), JF1JLW (Toride Fireman Ham Club of Japan), HB9CXA (Bassersdorf, Switzerland) and several very fine QSLs from Japan showing fire stations, vehicles and equipment from several fire stations.

VKD, VK3EJ and 3EH

In Australia, it is recorded that grass fires were fought by military personnel very soon after the arrival of Phillip's first fleet. As the new colony grew and more substantial buildings were erected, the extinguishing of fires became a major concern of insurance companies. These provided buckets at certain stations


AMATEUR RADIO STATION
G4LFB
TO RADIO ... VK 1 CB
CONFIRMING OUR ... 144 ... MHz QSO
ON 8/11/86 ... AT 0815 ... GMT
UR CW/AM/SSB/FM RST ... 5/4 ...
TCVR TS940 TL922 ANT 2EL QUAD 400 WATTS @ 60ft
TNX/PSE QSL DIRECT OR VIA RSGB
Good to chat VK1 again
Chris HJH cuBAGM 73 Harold
OTH 184 Thistle Grove, Welwyn Garden City, Herts. AL7 4AJ, England
73 Harold White



180 Metres 1666 Kilo Cycles.

VKD

Q.R.A. Eastern Hill.

Power Input 100 Watts.

188·7 Metres. 1590 Kilo Cycles.

VK3EJ

Portable.

Power Input 100 Watts.

METROPOLITAN FIRE BRIGADE, MELBOURNE.

Test. 1 PM DAILY. MON. SAT.

Remarks Your rpt would be appreciated.
VK3EN. O.P. in charge.

primarily by insurance companies. Originally horse-drawn, the first motor vehicle came on to the roads from the Eastern Hill HQ in 1901. It was a steam motor car constructed by the Brigade's own workshop. However, the last horse belonging to the service was not sold until 1918. It is recognised that speed is an essential ingredient of any emergency service. It is therefore interesting to note that the Brigade was forced to apply for an exemption (which was reluctantly given) to the road rule then limiting the speed of vehicles to 12 miles an hour. Details of the history of the Metropolitan Fire Brigade (Melbourne) can be found in the book entitled *Life Under the Bells* by Sally Wilde (Longman-Cheshire 1991).

Like transportation, efficient means of communication is regarded as an essential ingredient of any emergency

together with ladders and axes. Australia's oldest fire station, the No 1 Volunteer Fire company in the Haymarket, Sydney dates from 1857, but a system of volunteer fire fighters was in operation long before that date.

The 1884 Fire Brigades Bill that established the Metropolitan Fire Brigade was a great step in the development of an efficient service, finance being obtained from Government and municipal funds as well as from insurance companies. It is said that the NSW Board of Fire Commissioners is the largest centrally-controlled fire service in the world. Further details may be obtained from Colin Adrian's book entitled *Fighting Fire — a Century of Service 1884-1984.*

Melbourne's first recorded fire occurred in April 1838, a wattle and daub guard room off Collins Street. The fire was started by aboriginal prisoners as a novel way of escape which seems to have been successful. The next year the Melbourne Fire and Marine Insurance Co entered into the fire fighting business and provided leather buckets and axes to volunteers. It was up to another insurance company, the Cornwall Fire Insurance Co, to invest in an actual fire engine. Just before the gold rushes the Melbourne Fire Prevention Society was formed consisting of seven persons (the population of Melbourne was then less than 5040).

Following the English tradition all men working the water pumps were supplied with beer. At an enquiry held in 1885 the Brigade captain was asked about drinking on duty. He swore that he never supplied his men with alcoholic liquor but the publicans did! As in NSW a later development was the formation of suburban fire units, these being supported by contributions of insurance companies, municipal and government funds.

Metropolitan Fire Brigade Head Quarters, Eastern Hill, Melbourne, Victoria.

25/11/27

Your Report received he... at ... Melb.M.T.

Audibility ... Character ... Modulation ...

Transmitters 2/5 ... Watt Tubes. ... Hartley Circuit.

Heising Modulation. In... 250 Volts ... C. 50 M.A.

Also Portable Station 3EJ ... SW Tubes ... Hartley Circuit.

R.A.C. from ... Tubes. ... 1000 Volts ... C. 50 M.A.

Receiver ...

Antenna 87 ft. long 38 ft. high. Counterpoise 90 ft. long 12 ft. high.

Remarks Thks for yr rpt which is appreciated

W Stock O.I.C.

3EH

companies, municipal and government funds.

Melbourne's building boom of the 1880s gave rise to taller buildings which made the use of steam fire engines obligatory and saw the demise of the old manual pumps.

Apart from actually fighting fires there are many other aspects of this important service, not the least of which is fire prevention. Automatic sprinkler systems date back as early as 1885 as insurance companies offered discounts to firms installing them. Watch towers also became a common feature and several street fire alarms were installed. The need for telephone links also was another reason for the establishment of a full-time component of the service.

In May 1891 the Melbourne Fire Brigade replaced the brigades formed

service. In 1924 experiments with radio commenced in Melbourne. The best known pioneer in this field is Henry Pierce who, before joining the Brigade, had been employed at radio station 3AR. He was an active radio amateur, his call-sign being VK3EN. The first Brigade transmissions were on a wave length of 180 metres (frequency was hardly ever mentioned in the golden days of radio), transmitter power being 25 watts. (Later, permitted power was increased to 100 watts.)

The WIA collection is fortunate indeed in having the earliest QSL of the first radio station established at the Princes Hill HQ. The call is 3EH and the card is dated 22 November 1927. A Hartley circuit was used together with Heising modulation. An antenna 87 feet in length was used together with a counterpoise 90 feet long. The card shown, VKD/VK3EJ, was a later QSL from the BHQ, and is signed by

Henry Pierce, the radio operator in charge. The collection also contains several of Mr Pierce's own QSLs with the call-sign VK3EN. Like the Brigade HQ card it shows fire hose, axe and helmet.

During the Second World War a network of two-way communication was established between fire vehicles and base stations but it wasn't until 1971 that a control centre was established to coordinate calls to and from all stations and mobile units, and not until 1989 that a modern computer system could be installed.

Much of the history of fire fighting in Australia has dealt with metropolitan brigades. However, early "Bush Brigade Volunteers" in turn formed "Bush Fire Brigades" at about the turn of the century. These were the forerunners of the present Country Fire Authority (CFA) organisation almost all of whose members are volunteers. Peter VK3CFA is one such member fortunate enough to have been allocated that appropriate call-sign. Eric VK3ZHQ shows a tender used for rural fire fighting on his QSL card.

The same kind of organisational development can be found in other Australian States. History tells us that as early as 1827 in Tasmania seven prisoners were organised to form a fire unit but it wasn't until 1910 that the first permanent fire fighters were appointed. Tasmania can also boast of establishing Australia's first all-female fire unit. Queensland's first Brigade dates back to 1865 and was called the "City Volunteer Fire Brigade". In South Australia insurance companies' fire engines were operating as early as 1839, and in WA the Fire Brigade Board, which centralised administration, was founded in 1898. The NT saw the Darwin Fire Brigade established in 1941.

Nowadays all States and Territories are known for their efficient services provided to the public. Such a service coordinated by modern radio communication has, in times of emergency, been assisted by the radio amateurs' own voluntary emergency organisation, WICEN (Wireless Institute of Australia Civil Emergency Network). Like the volunteers of the Fire Fighting services, members of WICEN can be justifiably proud of their commitment to service to the public.

Note From the Author

The collection is still in need of QSL cards. Those most in demand are rare DX cards, pre-war, pictorial and thematic cards and special issue (commemorative) QSLs. Please contact the author who is the Hon. Curator of the Collection.

Thanks

The WIA would like to thank the following for their kind contribution of QSL cards to the Collection (supplementary list):-

VK9NS, VK3AGW, VK6HD, VK3AHK, VK3DMS, VK4NJQ, VK4KYM, VK2ALG, VK4NRZ & VK4BRZ, VK2POA, G3HCQ, VK3BG, VK5TL, VK3TE, W2MEL, VK2ALG, VK2UB and VK2QF.

Also the friends and relatives of the following "Silent Keys" (supplementary list):-

VK2YL, VK3WQ, VK2AHM (courtesy of VK3DMS), VK4KHZ and VK3YU.

4 Sunrise Hill Road, Montrose VIC 3765
Tel 03 728 5350

AR

Spotlight On SWLing

*Robin L. Harwood VK7RH**

Another bit of shortwave radio history came to an end on Sunday 27 March when the BBC World Service closed down its Pacific Service on 7150 kHz. This late afternoon regular was there when I commenced listening to shortwave in 1956 but had been on this frequency for many years prior to that. Fortunately London can still be heard on 9410, 12095 or 6195 kHz. I note that the "Beeb" is running Arabic on 7150 at 0600 now. It does seem strange that they have dropped this frequency for I am hearing the Skelton senders from 0500 till 0750 on 7230 kHz. Yet the programming isn't coming from Bush House, but from Tokyo, Japan. It is rather ironic that I hear Tokyo better via the UK site than direct from Japan at this time.

Incidentally, it has now been confirmed that there are big changes planned for 1995 for all BBC external services, especially with the 24 hour BBC World Service, which will be split up into six or seven regional services. For example, Asia, Africa, North and South America, the Middle East, Europe as well as Oceania will have programming closer to their local time zones. This will also allow the BBC to make better use of their senders to carry non-English programming to the same regional areas. There are also some programming alterations already under way ahead of these planned changes. For example the 30 minute "Newsdesk" at 0700 UTC has been axed, replaced by a 15 minute news bulletin. Also the number of presenters of "Newsdesk" has been cut back from two to one.

The BBC External Services have had approximately $12 million slashed from this year's allocation by the Foreign and Commonwealth Office, which is responsible for their budgeting. As well, the BBC World TV Network Asian release also had a setback when Rupert Murdoch's "Star" satellite TV network axed the BBC's use of a transponder, placing a Mandarin movie channel in its place. The "Star" satellite network based in Hong Kong has gained a foothold into Asia and recently several Asian governments have become nervous about BBC TV news broadcasts. Hence the real reason why "Star" decided to ditch the BBC from their output. They didn't want it to affect their other programming.

I believe, however, that they are hoping eventually to get a transponder on another satellite in the future to service the same region. Yet, the "Beeb" has bounced back by announcing the commencement of an Arabic TV service for 9 hours a day, hoping to extend this to 24 hours by the end of this year.

Several international broadcasters have been suffering severe jamming of late and have made some slight frequency adjustments as a result. The main culprit appears to be North Korea who seem to be jamming shortwave programming in that language, even if it is directed away from the Korean peninsula. The only exemption appears to be China Radio International and Radio Pyongyang itself. Even Radio Moscow's Korean broadcasts have been known to be occasionally jammed.

South Korea has been known to jam clandestine broadcasts emanating from the northern half of the Korean peninsula since the Korean War and there are very few shortwave sets on the market in South Korea while they are virtually non-existent in the north. Despite this, the North Koreans are still quite nervous about their citizens having access to international radio, particularly at this present time. Hence Korean broadcasts are jammed on shortwave no matter if they be for domestic consumption or for the sizeable worldwide Korean expatriate community.

You can hear the North Korean clandestine on 3480, 4120 or on 4457 kHz. It is there under the South Korean jamming and comes in from about 1000 UTC onwards. The North Korean jamming efforts can be heard on Radio Korea (Seoul) on 7180 or 9570 kHz in the evening hours. Even relay broadcasts via Radio Canada International in Sackville (NB) from Seoul directed to North America on 11715 and 9685 KHz suffer.

Radio Pyongyang in English can be heard from 1100 UTC on 9977 kHz. This gives the North Korean perspective, while Radio Korea can be heard in English from 1200 UTC on 7180 kHz or on 9685 at 1130 via RCI.

Well, that is all for this month. Until next time, the very best of listening and 73.

54 Connaught Crescent, West Launceston TAS 7250
VK7RH@VK7BBS LTN.TAS.AUS.OC

AR

Technical Correspondence

Tuned Feeders and Multiband Antennas

Being a "tuned feeders" man from way back, I was very interested in the article "Tuned Feeders and Multiband Antennas" by Mr J H Gazard VK5JG, in the April issue of *Amateur Radio* magazine.

It is encouraging to see people developing their own theories. Full marks to Mr Gazard for original thinking, and the exercise of creative imagination. I found the exposition of his theory very plausible, until reaching the part where tuned feeders are seen to match the antenna at the feed point. An inner voice cried "Uh Oh! — No way!"

If this contention were indeed correct, the transmission line would have an SWR of 1:1. A wealth of accumulated evidence exists to show that this is not so. Further, there is no way an ATU at the sending end of a transmission line can affect the current distribution following it (except for amplitude); it cannot "move an impedance up the feeders" as described. All such a device can do is correct any reactance, and present the transmitter with the desired resistive load.

Looking further back, Mr Gazard claims that only the current due to forward power enters the antenna, the remainder being reflected at the feed point. This is in direct conflict with Kirchhoff's first Law, which states, in effect, that the current entering any point must be equal to the current leaving it. Adjacent ammeters, in the feeder and antenna, will be found to produce identical readings.

It is not explicitly stated, but the author gives the impression he subscribes to the commonly held misconception that "forward power is radiated; reflected power is wasted". Perhaps this is a good opportunity for comment. There is ample evidence from published SWR and loss data (eg ARRL Handbook) that this is not so. The reason for this apparent contradiction of the Law of Conservation of Energy is that reflected power is not dissipated as heat, but is re-reflected as forward power.

Figure 6 in the article calls for comment. It is stated that the feeder currents are unbalanced, due to the offset of the feed point. Again, the unfortunate Kirchhoff has been denied. Since the gap in the antenna is a small fraction of a wavelength, the immediately adjacent antenna currents will be virtually identical. So must the feeder currents be. (It is of interest to note that correct placement of the feed point can, in fact, produce a perfect match. See Bill Roper's article *"You Too Can Have an SWR of 1:1"* published in the October 1990 issue of *Amateur Radio.)*

We should be grateful to Mr Gazard. From the point of view of the magazine, ANY article which arouses interest, provokes discussion and ultimately leads to enlightenment, is a GOOD article.

Graham Thornton VK3IY
12 Alan Grove
Woori Yallock VIC 3139

Another Viewpoint

May I call attention to April 1994 *Amateur Radio,* page 16, Random Radiators by VK3AFW and VK3OM. The statement presented, apparently as a fact, is *"...If you want to 'tune' the antenna then there is only one place to do it and that's at the antenna itself."* Commenting on this, I submit the following.

On the same page reference is made to *"...the guru of antenna matching, Walter Maxwell W2DU."* Maxwell's book, Reflections, ARRL, 1990, Page 7-5 states *"...system resonance compensates for the effect of the off-resonant condition of the antenna as we move around a given frequency band."*

Page 13-4 states *"The antenna tuner really does tune the antenna to resonance, in spite of opinions to the contrary of those who are unaware of the principles of conjugate matching. The tuner obtains the match, by which all reactances throughout the entire antenna system are cancelled, including that of the off-resonant antenna, thereby tuning it to resonance."*

Page 17-2 states *"When a conjugate match is accomplished at any of the junctions in a system, all reactances in the system are cancelled, including any reactance in the load, This reaction cancellation establishes resonance in the entire system."*

And page 19-5 of Maxwell's book, Reflections, states *"To paraphrase from this NBS (National Bureau of Standards) definition, conjugate match ... according to the theorem, when a conjugate match is accomplished at any of the junctions in the system, any reactance appearing at any junction is cancelled by an equal and opposite reactance, which also includes any reactance appearing in the load, such as a nonresonant antenna. This reactance cancellation results in a net system reactance of zero, establishing resonance in the entire system. In this resonance condition the generator delivers its maximum available power to the load. This is why an antenna operated away from its natural resonant frequency is tuned to resonance by a matching network connected at the input to the transmission line."* So says *"...the guru of antenna matching, Walter Maxwell W2DU..."*

Oh yes, I like the Z-match ATU. Mine is the one-coil version, QRP and covers 160 m through 10 m with no switching. It works just fine!

73 and Aloha.

Dean Manley KH6B
2058 Ainaola Drive
Hilo, Hawaii 96720
ar

Repeater Link

*Will McGhie VK6UU**

FM 828-5

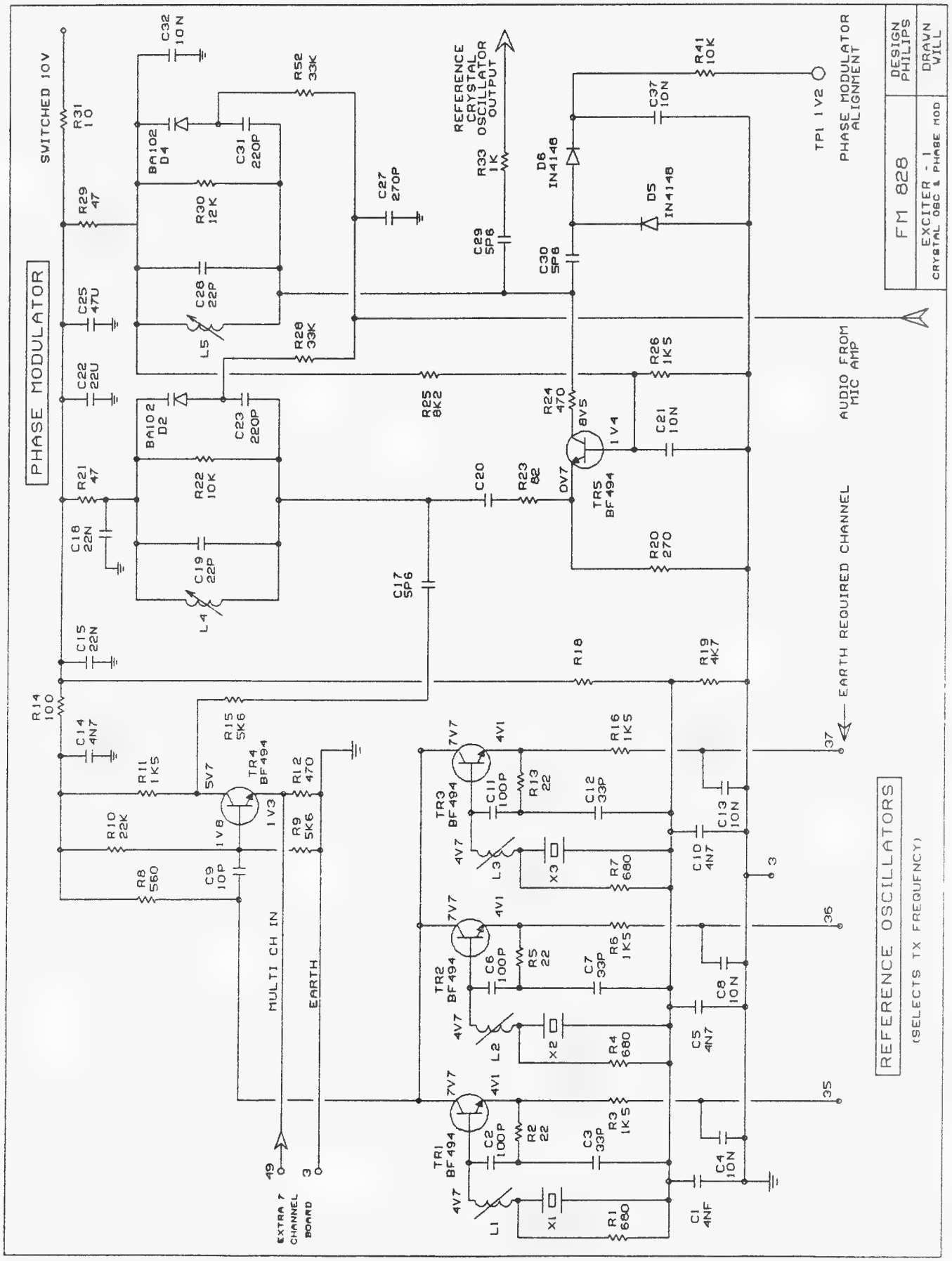
This is number 5 in the series of circuits for the FM 828 transceiver. At long last the first drawing of the transmitter. This circuit shows the reference oscillators (transmit frequency) and the phase modulator. There are 3 reference oscillator circuits to allow for 3 transmit channels. This signal is around 18 MHz but is not multiplied up to 2 metres. Rather, it is compared to a divided by 8 signal from the VCO which oscillates at the 2 metre output frequency. It is this signal that is amplified in the power amplifier.

The next circuit will show the Phase comparator where an error signal is produced to lock the VCO onto 8 times the crystal reference oscillator. This may seem a complicated way of doing it but, as there are no frequency multipliers in the transmitter chain, there can be no harmonic related signals from the 18 MHz crystal. The end result is a very clean transmitter signal with no spurious responses.

Note the test point 1 (TP1) which is for adjusting the phase modulator tuned circuits L4 and L5. Simply tune L4 and L5 for maximum voltage at TP1.

All these circuits were produced on the CAD program Draft Choice and are available via Packet radio in 7 Plus format.

**21 Waterloo Cr Lesmurdie 6076*
VK6UU@VK6BBS
ar


PHASE MODULATOR
SWITCHED 10V
R31 10
R29 47
C25 47U
C22 22U
R21 47
C18 22N
C15 22N
R14 100
C14 4N7
R11 1K5
R10 22K
R8 560
C9 10P
R15 5K6
TR4 BF494
R12 470
R9 5K6
MULTI CH IN
EARTH
EXTRA 7 CHANNEL BOARD
49
3
C32 10N
R52 33K
BA102 D4
C31 220P
R30 12K
C28 22P
L5
C27 270P
R28 33K
BA102 D2
C23 220P
R22 10K
C19 22P
L4
C17 5P6
REFERENCE CRYSTAL OSCILLATOR OUTPUT
R33 1K
C29 5P6
C30 5P6
D6 IN4148
D5 IN4148
C37 10N
R41 10K
TP1 1V2
PHASE MODULATOR ALIGNMENT
R25 8K2
R24 470
8V5
1V4
TR5 BF494
0V7
C20
R23 82
R26 1K5
C21 10N
R20 270
AUDIO FROM MIC AMP
EARTH REQUIRED CHANNEL
R18
R19 4K7
37
R16 1K5
C13 10N
C10 4N7
C8 10N
C5 4N7
C4 10N
C1 4NF
TR3 BF494
C11 100P
R13 22
C12 33P
L3
X3
R7 680
TR2 BF494
C6 100P
R5 22
C7 33P
L2
X2
R4 680
TR1 BF494
C2 100P
R2 22
C3 33P
R3 1K5
L1
X1
R1 680
7V7
4V1
4V7
1V8
1V3
5V7
3
36
35
REFERENCE OSCILLATORS
(SELECTS TX FREQUENCY)
FM 828
EXCITER - 1
CRYSTAL OSC & PHASE MOD
DESIGN PHILIPS
DRAWN WILL

VHF/UHF An Expanding World

*Eric Jamieson VK5LP**

All times are UTC

Six metres

Judging from the lack of correspondence six metre operators have not been making many contacts. There are still contacts to be made with the JAs who appear quite often, especially the beacons! On 16/3 JAs were hearing the VK7 beacon and worked P29CW and VK4BRG. VK3s have been working some VK2s. **John VK4KK** said on 27/3 that, between 0130 and 0400, JA1 through to JA0 were very strong in Brisbane. John also said from 2-6/4 JA9AG will operate as 9M0AG and from 8-14/4 JA1UT will operate as E28DX. These notes will be too late to help but it will be interesting to be informed if anyone found them on the band.

John VK4PU writes confirming that JAs have been around. 2/3: JA7 beacon and several JAs working VK4s; 3/3: JAs to VK4, JA beacons 2 and 7, much TV crud on band from north. New JA0 beacon very strong. Best JA opening of recent times was on 27/2 with beacons 0, 2, 6 and 7 and stations on from practically all JA call areas.

On 31/3 between 0200 and 0900 there was much activity below 50 MHz from the Asian region, with many Korean telephone signals and TV. JA2 and 4 were weak but JA6 was strong indicating the best conditions were west of Japan. This was born out by the appearance of HL4KM, HL1MKF from Korea, XX9TDW from Macao but no signals from Hong Kong. Maybe their beacon is not working?

Emil W3EP from *QST* and "The World Above 50 MHz" reports that on 12-13/1 New Zealanders worked stations in Texas and possibly other areas. At 0000 on 12/1 W3IWU had a good Es opening and then double-hop Es to XE1J. N7JJS/5 also worked XE1J and was then surprised by a contact with ZL2TPY at 0046. It was curious that W3IWU was able to hear both ends of that contact but was unable to work the ZL himself. The opening lasted for about 45 minutes.

The next day about the same time Al WB5LUA and his son Brian N5QGH found ZLs on the band and worked ZL2TPY and ZL2KT between 0120 and 0135 as did a number of other Texans.

Emil W3EP goes on to say that these contacts are difficult to explain and this is his reasoning. *The contacts occurred at the time and season when F-layer propagation between the South Pacific and the southern tier of states would be expected. The problem was that the solar flux was less than 100, well below what is normally necessary for the MUF to exceed 50 MHz. Es was reported at the same time, at least on 12/1, so multi-hop E skip cannot be ruled out. At more than 12,000 km an astounding five or six Es hops would have been required to reach Texas. A combination of the two propagation modes is another possible solution, especially in explaining how W3IWU was able to hear what was going on.*

So, once again, there is proof that you can never say six metres has died. If you are around at the right time then there are rewards for vigilant operators.

From Europe

Ted G4UPS writes that Peter Taylor G8BCG, who will be remembered as H44PT from the Solomon Islands, advises that anyone requiring a card for an H44PT contact should write to: Peter Taylor, 10910 Kester Drive, Cupertino, CA 95014, USA. Peter has all his H44 logs with him.

Ted also says that the delay in receiving QSLs from 9K2WR in Kuwait was due to his log being on a computer disk which was seized under security regulations. The disk has been released so write to Mrs Amy Nutt, 5005 Willow Rock Way, Sacramento, CA. 95841-4912, USA.

1994 — despite the voices of gloom, conditions on the 6 m band have not been so bad — so writes **Ted G4UPS.** In January 1994 alone he had more than 70 QSOs with 13 countries. He said it took him years, from the permit days of 1983 to 1986, to work 13 countries!

On page 49 of the January 1994 issue of *Six News* from the UK Six Metre Group is a 50 MHz DXCC Standings List from the ARRL which was made available by Emil W3EP.

At the time of printing, Certificate 166 was the last to be issued and was awarded to Steve VK3OT. Steve was also mentioned as being the first to attain DXCC from the Oceania area. Other snippets of interest are:

K5FF has certificate number 1.

JA4MBM at number 4 is the first Japanese recipient.

G3RFS and PA0ERA both hold Certificate 57!

The first certificate to Europe was G4AHN with number 29.

G6HCV was the first UK class "B" to reach DXCC status with number 137.

59 DXCCs have been awarded to Japan.

53 DXCCs have been awarded to Europe including 19 with a G prefix.

38 DXCCs have been awarded to the USA.

VE1YX is the only award to Canada!

There are two awards to KH6.

Two awards only have gone to South America, PY5CC and ZP6CW.

No station is listed from Asia.

Certificates number 101, 103, 123, 143 and 163 have not been issued.

Three certificates have gone to Malta.

The DXCC Desk is currently turning around applications in 4-6 weeks.

FR/DJ3OS/G and YV0/W6JKV are currently the only 6 m QSLs that the ARRL is consistently rejecting.

Aircraft Enhancement

Fred Baker VK2YZU confirms my six metre contact with him and says that he has now become interested in contacts using aircraft enhancement. His window for working into the eastern side of Melbourne is 2140 to 2150 +/– 5 minutes.

On 4/12 at 2150 he worked VK3XRS (144.200) with signals to 5x5 and nine times since and usually with two overs each time. On 14/1 2149 VK3TU 5x5, 2151 VK3BRZ 5x5; 15/1 2136 VK3DEM 5x3. Also on 9/4 Fred worked VK3XRS at 0335 on 6 metres and at 0339 on two metres, 5x2 (the latter contact, he reasoned, was probably due to ducting).

So another satisfied customer! My signal paths from Meningie are too far south for assistance from interstate flight paths. We have many daily small-aircraft movements from the Meningie Airport but they are of no value, particularly when flying at a height of 1000 feet or less!

Chas VK3BRZ writes that there has been a small reduction in participation but regulars are VKs 1BG, 1DO, 2ZAB, 3TU, 3AFW, 3BRZ, 3DUT and 3XRS. Newcomer Brian VK3JG has worked Canberra on two metres.

On 5/3 VK3BRZ worked VK2ZAB on 432.1 at 5x1, 5x2. Distance is about 770 km. The VK3BRZ station on 70 cm consists of an IC-471H with 50 watts to 4x15-element DL6WU Yagis at 16 m with a GaAsFET pre-amp. Gordon VK2ZAB runs 300 watts to 4x22 element Yagis also with a GaAsFET pre-amp.

Chas said it was his first contact to Sydney on 70 cm and the contact was easier than on two metres. Signals to Canberra are also good but the path duration is shorter than on two metres.

Chas is also puzzled at the lack of reference to aircraft enhancement in overseas publications with only a passing reference in the *ARRL Handbook.* Can anyone inform him of foreign articles on the subject?

Two metres and above

Chas VK3BRZ reports on the good opening between VK3 and VK5 on 13/3. Early in the evening VK5KAF on Kangaroo Island was worked by Melbourne stations on two metres. Earlier in the day VK5s had been working VK6s. VK5s ACY, DK and NY appeared on both 144 and 432 and worked VK3s ALZ, KWA, TU, TDV, FPG, AFW, ZQB and BRZ. Many signals were 5x9 both ways. VK3BRZ worked VK5NY on 6 metres at 5x4. There were no VK7s despite their beacon VK7RNT being copied at good strength by VK5NY. On 1296 **Roger VK5NY** worked VK3ALZ, VK3KWA and VK3TU.

Ron VK3AFW continues to work Andrew VK7XR, on two metres each week-day morning. At Ron's end the 380 km path is obstructed by a low ridge about one km distant. CW is the preferred mode with signals 519 and 529 on average. Tropo enhancement allows phone contacts and for four days at the beginning of March SSB QSO's were up to S7 with occasional deep fades in a 15 minute contact.

After several years of using 144.100 they are now using 144.080 and welcome breakers, especially from interstate. The QSOs commence around 2220 and end with a chat to Des VK3CY.

The VK7RNW beacon continues to provide reliable propagation indications and can be heard to 579 in Melbourne. VK5VF is the only other interstate beacon to be heard in Melbourne this year.

Ron said that overall two metres had not been favourable this year, the only recent contact of note being to Mick VK5ZDR on 9/2 with 5x5 signals both ways. However, he continues to work via aircraft enhancement and includes VK1BG and VK1DO as regulars in his log. He no longer hears Lyle VK2BE on 432 and 1296 as Lyle's path south has been ruined by a large block of flats erected next door to him!

My old friend **Al VK5EK** has launched himself into EME operation on two metres. Using 8 NBS Yagis and overall modest equipment he has had success working European stations. It is believed he may have antenna shielding problems looking the other way for US stations. Good luck!

Mark VK5EME advises of the concern being felt in Adelaide over the possible loss of the 2.3 GHz band to MDS. Two beacons and an ATV repeater operate on that band and, whilst there appears to be no immediate threat from MDS in Adelaide, the fact that other States are being affected is of concern, especially when long distance contacts are being sought. It seems three options are offered: turn off the beacons, accept interference, don't cause interference to MDS.

If amateurs are required to shift to 2.400 — 2.450 GHz then there will be a headache caused by the need for changes to the operating parameters of the many 2.3 GHz transverters, amplifiers, pre-amplifiers, etc which have been designed and sold for the VK5 Equipment Supply Committee. You just don't make an effective change of 50 to 100 MHz higher in frequency by simply plugging in another crystal!

At this stage I don't know enough about what the future holds for the band to comment any further but ahead the use of 2.3 GHz looks bleak.

Further to my notes of March I note from the New Zealand magazine *Break-In* that the tropo opening of 2/1 was probably one of the best ever between New Zealand and Australia. The duct lasted for 27 hours and in that time Bob ZL4AAA, situated on the northern end of the North Island, had worked more than 60 VK2s and VK4s on 144 MHz SSB and FM.

Signals were very strong and stable and it was possible to work across the Tasman using very low power. Bob was working FM stations using 20 watts and a 4 element Yagi at distances in excess of 1900 km and was elated to work VK2AWA who ran 300 mW to a groundplane. Bob's best DX was 2350 km. ZL1IU worked many VK2s and VK4s but also added VK5NC and VK5DK (which I reported in the February issue) for a distance of 3000 km.

Best contact for the month

This should go to VK2AWA who used 300 mW to a groundplane antenna to work ZL4AAA on 144 MHz during the big tropo opening on 2/1/94. It is reported late but I did not have prior knowledge of the contact.

Unusual contact

Further to Gordon VK2ZAB and his contact to New Zealand using Lord Howe Island as a reflector, a letter has arrived from **Alan Williams VK7AM** outlining an unusual 144.320 MHz contact he had operating as VK4AI from Brisbane.

Alan was one of the first VK4s to use SSB on two metres and over several days was interested to hear a weak signal south east of him. He and Roy VK4ZRM monitored the signal but, due to its weakness, were unable to complete a contact. Finally on 16 November 1966 from 1145 to 1253 UTC, VK4AI maintained an SSB contact with LA4ZH/MM who was operating from the oil tanker *Falkenberg*. The ship was 210 nautical miles NW of Lord Howe Island which was about halfway to Brisbane and opposite Coff's Harbour. Certainly an unusual contact with no apparent language barriers in view of the length of contact.

Aage LA4ZH/MM was using a Gonset 900A to a stacked pair of halo antennas 3/4 wavelength apart. He was the First Officer/Radio Operator and gave Alan 5x9 and received 5x5. Alan used a homebrew transverter to a QQVO-3/20A feeding a pair of 8 over 8 slot-fed Yagis at 17 m. A schedule was set for the next night but no contact resulted due to weak signals. No doubt the tanker travelled quite a distance in 24 hours. After a long wait a QSL card arrived via the Bureau. Of the contact Alan said, "It was still very much the good old AM days, no band plan, no FM or repeaters and everyone a gentleman."

Over the years I have heard of a number of MM contacts on VHF, one in fact using super-regenerative equipment on six metres! One wonders how the ship-board radio equipment fared. I suppose I could cap it all by saying I have a QSL for an alleged two metre contact I had with a station in Germany. Its a bit far from Meningie for me to work a DL on two metres and I have never been to Europe so you can draw your own conclusions!

Incidentally, Alan VK7AM was first licensed as G3IRS in 1949 at the age of fourteen. Then VS6DL in 1953, G3MHD in 1957. He worked eleven countries on two metres and received the *Short Wave Magazine* VHF Century Club Award for working 100 stations over 100 miles on AM by 1959. He commenced using SSB in 1963 with 25 watts from a QQVO-3/20A and a Nuvistor converter. Later he used a QQVO-6/40A at 160 watts output (poor thing, I hope you did not cough into the microphone!..5LP) to an 8 over 8 skeleton slot antenna. He favours this type of antenna due to its relatively high gain and wide bandwidth.

Beacons

The 1994 edition of the RSGB *Amateur Radio Call Book* (courtesy Doug VK4OE) has six pages listing beacons commencing with the 1000 watt ERP GAM1 at Chelmsford UK on 3.821 MHz, then twelve more HF beacons before commencing a long list of 28 MHz beacons world wide. Then comes half a page of 50 MHz beacons, nine on 70 MHz, a full page each on 144, 432 and 1296, half a page on 2.3 GHz, five on 3.456 GHz, four on 5.76 GHz, twenty nine on 10 GHz and six on 24 GHz. All of the beacons on 144 and higher bands appear to be located in the UK or Europe.

As is the case in most call books, by the time they are in print quite a percentage of beacon listings are out of date and this list is no exception as there are many omissions from 50 MHz. The only Australian beacon listed is VK6RPH in Perth on 50.066 although we do have six listed on 28 MHz! Notwithstanding such

omissions, for anyone living in Europe and working 144 and above, the list would be very useful. On 144 there are three running 1000 watts ERP, one each at 1500 and 1800 watts and quite a collection between 100 and 700 watts. In Holland there is one running 400 watts on 2.3 GHz and one in the UK on 10.368 GHz runs 50 watts. On 24 GHz there are two running 8 watts. Interesting.

Six Metre Standings List

The next list is due in the August issue and additions and alterations are required by 20 June please. Unless I am presented with very good reasons for continuing the Standings List, then the next list will be the last. Considerable thought and anguish have been part of the process in arriving at this decision, for the following reasons:

1. During the past two years about half the entries have not been upgraded. Why?
2. The list is inaccurate because of known high scores by a number of stations who have chosen not to be listed.
3. Although limited to just a few people, over the past five years the list appears to have been the source of petty squabbling with queries as to the authenticity of some contacts.
4. When the Standings List was introduced in 1980 I had envisaged and found it to be an interesting addition to my notes. For some years it was, then reason 3 crept in and I found myself being forced to closely scrutinise the entries and ask for photocopies etc.
5. One member has attained DXCC so it is likely that interest in attaining 100 countries will now wane, especially with F2 contacts disappearing as Cycle 22 ends.

Errata

Ron VK3AFW drew my attention to the reference to the ZL Es opening on page 48 of the March issue as being 1992 and not 1993, he had included it as a comparison and I read it incorrectly. Sorry Ron.

Closure

Closing with two thoughts for the month:

1. I'm scared! I don't know whether the world is full of smart men bluffing or imbeciles who mean it, and
2. Ever notice that the more modern and streamlined planes become, the more they resemble those paper arrows we made in primary school?

73 from The Voice by the Lake

*PO Box 169 Meningie SA 5264
FAX: 085 751 043

Six metre operator JA1VOK and his eight year old son.

What's New?

Bob Tait VK3UI

New Range of Mobile Antennas

Adrian Fell VK2ZDF, a regular contributor to *Amateur Radio* magazine, advises that **Global Aerials** has released a range of 11 mobile antennas at a budget price.

The range covers all amateur bands from 3.5 to 30 MHz. Specials are also available on request.

These new, high performance mobile whips are designed to be mounted high on the vehicle, eg at roof or boot level. The slim, two piece construction is unobtrusive as the upper whip is not easily seen. The lower band units (3.5 to 14 MHz) are 2 metres in length and the higher frequency units are 1.7 metres long with the exception of the 27 to 29.8 MHz whip which is also 2 metres long.

The low band whips use a matching capacitor in the feed line to obtain a low SWR.

For further information contact Adrian Fell at Global Aerials on (02) 899 8560 or write to PO Box 244, Baulkham Hills, NSW 2153.

MFJ Antenna Tuner/Artificial Ground

MFJ has done it again with the release of their new MFJ-934 Antenna tuner/ artificial ground. You get the best features of the MFJ-931 & MFJ-941E combined into one box. This compact unit measures 270

x 73 x 178 mm, small enough to fit into your luggage when you go portable. The MFJ-934 turns a random wire into an effective antenna that works; the ground matching control lets you switch in an inductance to bring an attached wire to a low impedance point to form an artificial ground.

Press a button and read the ground current or VSWR on a cross needle meter. The tuner covers 1.8 to 30 MHz and will tune random wire, balanced lines or coax; it is rated at 300 watts.

For further information contact DAYCOM on (03) 543 6444.

MFJ-462 Multi Reader

Have you ever wondered what all those mysterious whistles, chirps and buzzing sounds are on the HF bands. Much of this is RTTY, ASCII, CW or AMTOR signals passing all sorts of interesting traffic. This unit decodes these signals and uses an LCD display to scroll the information across the screen. You don't need a computer or an interface program. Just plug the unit into your earphone jack and tune into these interesting modes. Turn your receiver into an eavesdropper and get the latest news of the world.

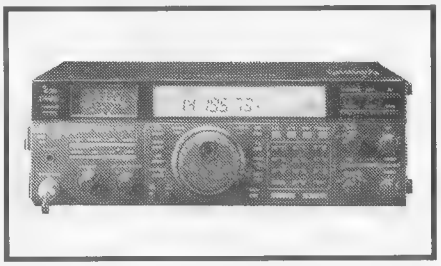
For further information contact DAYCOM on (03) 543 6444.

MFJ's new TNC/MIC Switch MFJ-1272B/M

Switch between your TNC or microphone by simply pressing a button. No more unplugging cables to change modes; just plug in the pre-wired cable into your rig. Works with Kenwood, ICOM, Yaesu, Alinco and many others. For radios with 8 pin connectors order the "M" version. Plug in cables allow interface to any radio.

For further information contact DAYCOM on (03) 543 6444.

ICOM IC-736 HF/50 MHz All Mode Transceiver

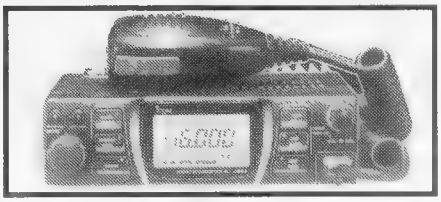


This new HF transceiver from ICOM covers all 9 HF ham bands, plus 50 MHz, and includes general coverage receive from 500 kHz to 29.995 MHz. The inbuilt antenna tuning unit has preset memories for each 100 kHz step.

Other features include an inbuilt switched mode power supply, power MOS- FETs providing full 100 W output on all bands including 50 MHz, double band stacking register, pass band tuning and a notch filter.

Supplies of this exciting new HF transceiver are in stock. For further information contact ICOM (Australia) Pty Ltd on (03) 529 7582, or Fax (03) 529 8485.

ICOM IC-281H 144 MHz FM Transceiver



Some of the features in this exciting new 2 m mobile include the availability of an extra receive band, 430 — 440 MHz, which enables full duplex, cross band operation between the 2 m and 70 cm bands; a total of 60 regular memory channels plus 10 scratch pad memories; and a data jack which connects a TNC directly to the modulation circuit therefore enabling data speeds up to 9600 bps to be used.

The one-piece die-cast aluminium frame includes a large heat sink which provides increased stability for high duty cycle operation such as packet.

Supplies of this exciting new HF transceiver are in stock. For further information contact ICOM (Australia) Pty Ltd on (03) 529 7582, or Fax (03) 529 8485. **ar**

Update

Tuned feeders and Multiband Antennas

There are some errors in this article which was published on pages 8 and 9 of the April 1994 issue of *Amateur Radio.*

The topic is probably one of the most discussed, yet at the same time most misunderstood, areas of amateur radio theory, so it is not unusual to find even experienced authors occasionally running into problems in this field.

Regrettably, the errors concerned slipped through our normally stringent checking procedures. The editors have learnt from this experience.

The article states, beginning near the bottom of column one, *"...the standing wave in the feeder can be moved up the feeder" and, further on, "...a low impedance point in the feeder has been brought up to the low impedance point in the antenna .... by using a matching device at the feeder input .... known as an antenna tuning unit (ATU)."*

The facts are:

1. Once the antenna characteristics have been fixed, they alone determine the position of standing waves on the feeder;
2. The ATU has no effect on the feeder standing wave position; and
3. The ATU transforms the impedance at the feeder input to a value, at its own input, giving a better match to the transmitter output. Thus, by optimising the power transfer, it will change the amplitude of the standing waves on the feeder and antenna, BUT NOT THEIR POSITION!

Later in the article (the last paragraph) it is claimed *"...if the length of antenna plus the length of each feeder wire is greater than a half- wavelength .... any combination .... will function as a workable antenna".* This is partly true, but only because a larger antenna will be more efficient. In fact, antennas much less than a half-wavelength can be quite "workable".

This proviso about antenna plus feeder length is first mentioned near the end of column two, which then refers to "standing wave impedance" (a term of dubious meaning). The rest of the paragraph is ambiguous, and Fig 3 is also slightly in error.

For further comment on this matter, see Technical Correspondence elsewhere in this issue.

Bill Rice VK3ABP
Editor
ar

Silent Keys

Due to space demands obituaries should be no longer than 200 words.

The WIA regrets to announce the recent passing of:-

H M	SMALL	VK2CAJ
L (Lindsay)	WEST	VK2EI
C N (Colin)	PARKINSON	VK2PC
F T (Frank)	HINE	VK2QL
R (Dick)	TILLEY	VK3AET
S (Stewart)	MCLEAN	VK3AIA
W (Bill)	BROWNHILL	VK3AWB
S D C	TOVEY	VK3BFN
A (Alan)	CAMPBELL-DRURY	VK3CD
H G	WILSON	VK4AGO
E F	FELL	VK4EF
B D	CLARK	VK4KU
C (Charlie)	O'BRIEN	VK4NC
J A	WRIGHT	VK7WJ

Frank Hine VK2QL

Frank Hine VK2QL of Homebush in Sydney died on 26 March 1994 aged 86. He had been in poor health for about 18 months and was confined to a nursing home at the time of his death. His wife Marjorie died last year. He is survived by his daughter Susan and son Brian plus several grand children and great grand children.

Frank trained as a fitter and turner with the NSW railways but, following the depression of the early thirties, he found himself temporarily unemployed. He joined the RAAF in 1936 and rose to the rank of Flight Lieutenant before leaving in 1956. During WW2 he saw active service in New Guinea as well as in Darwin and Townsville. After the RAAF he was employed by Toohey's in Sydney in their Property Division with responsibility for management of licensed premises. He finally retired in 1973.

Frank will be remembered as an avid Morse code enthusiast. From receipt of his amateur radio licence in 1935 until ill health intervened in 1992 he was continuously active on the bands apart from the war years. His main interest was the chasing of rare DX and participation in HF band contests and similar activities. Over the years he collected many awards and trophies. To aid him in the use of the HF bands he studied in detail radio propagation and the vagaries of the ionosphere. Frank never needed high power to work the world — he used his knowledge of the bands to great effect and became one of the world's great DXers. He achieved worldwide acclaim for his prowess on the bands.

Many will remember Frank for the training in Morse code and operating procedures he gave during his time with RAAF signals. Many VKs owe their present skills in CW operating to Frank's war-time training courses.

Frank was a staunch supporter of the WIA and for a time operated the VK2 QSL Bureau. He contributed regularly to the NSW Division Broadcasts with monthly reports on HF band propagation and conditions.

To his family and many friends we offer our sincere condolences.

Peter Naish VK2BPN

Lindsay West VK2EI

Lindsay passed away peacefully in his sleep on 6 March 1994 at Banora Point in his 99th year.

He passed his amateur exam in 1936 and built all his AM gear. His Sunday morning record sessions on the broadcast band were very popular in Parkes where he lived.

He conducted a Radio Sales and Service shop in Parkes in the pre-war years and during the war was employed by AWA in Sydney testing radio equipment for the services. After the war he returned to Parkes to a small hobby farm for a few years and enjoyed amateur radio in his spare time.

Lindsay spent the remaining few years of his life in retirement at Banora Point with his wife Teresa who died a few years ago. The disability of deafness prevented him from operating over the last few years.

To his son Wesley and daughter Sylvia and their families, Lindsay's friends extend their sympathy.

Herb Unger VK2UJ

Alan Campbell-Drury VK3CD

Alan was born in Melbourne in 1918 and passed away peacefully on 11 March 1994 after a short illness. After leaving school he began his career as an apprentice photographer. At the outbreak of World War II Alan was trained by the Navy and served as a ship's telegraphist during the entire war. Alan joined the ANARE (Australian National Antarctic Research Expeditions) in 1947 and went on several expeditions to Antarctica as the radio operator and photographer (then VK3ACD).

In 1967 Alan left ANARE to become a lecturer in photography at Swinburne College, from where he retired in 1983 as a senior lecturer. In his retirement he enjoyed travelling to outback Australia and very much loved pursuing his hobbies of amateur radio and photography.

Alan will be remembered as a very competent CW operator and will be greatly missed by his family and friends. He was always a very friendly and generous man.

Rick Campbell-Drury *(I am currently undertaking studies to achieve the AOCP and will be proud to take my father's callsign, VK3CD.)*

BR

Master Henry Witherspoon is dragged kicking and screaming from the family piano, to be forced to undergo what he detests most: a lesson in CW ...

WIA News

Band plans and Operating Habits

On each VHF band, a segment is set aside by gentlemen's agreement for narrow band modes and weak signal operation. Other segments are set aside for FM and repeaters, packet radio, etc. This band plan arrangement helps avoid mutual interference problems between otherwise incompatible modes and operations.

On the two metre band, the narrow band segment is from 144.000 to 144.600 MHz. Within this 600 kHz segment, the first 100 kHz — from 144.000 to 144.100 MHz — is for CW only operation. The segment between 144.100 and 144.600 MHz, is for CW, SSB and other **narrow** band modes. Within this segment is a sub-segment *exclusively* for beacons, between 144.400 and 144.600 MHz. There is, in addition, a "national SSB calling frequency" of 144.100 MHz. All this is part of a long-standing gentlemen's agreement that is adhered to nation wide.

Unfortunately, a growing number of wideband FM signals are appearing below 144.600 MHz, transgressing the band plan arrangement. FM stations have recently been heard using the national SSB calling frequency (144.100 MHz) and on other frequencies below 144.600 MHz.

Two metre operators who use the segment below 144.600 MHz, particularly those in pursuit of weak signal and long distance work, find FM stations who operate on top of 2 m beacon frequencies particularly annoying. Just because the VK5 2 m beacon cannot be heard by an FM station in Sydney is not a good reason for that station to operate in the beacon segment, using the VK5 beacon frequency or a frequency adjacent to it.

Beacons serve a number of purposes: among other things, to provide an effective indicator of propagation "openings", and to provide a constant reference signal for operators in the beacon's "local" area. At considerable distances, a beacon's weak "scatter" signal provides a means of checking or measuring station system performance.

It's just as important to have beacon frequencies free of interference when a band's NOT open as when it is open.

Many volunteers have spent a lot of time and money (often, WIA members' money) constructing, installing and maintaining the twenty four 2 m beacons currently operating in Australia.

FM stations operating in the beacon segment completely negate the efforts of these people. Last year, for example, there were occasions when FM operators in Sydney, for example, were actually having contacts on top of the Adelaide beacon frequency, when the beacon was clearly audible at the time! These stations declined to move, when asked.

There would be certain complaint if SSB or CW operators moved into the channelised FM/repeater segments and operated with impunity. Many such operators run considerable power to large antenna arrays and thus have high radiated power.

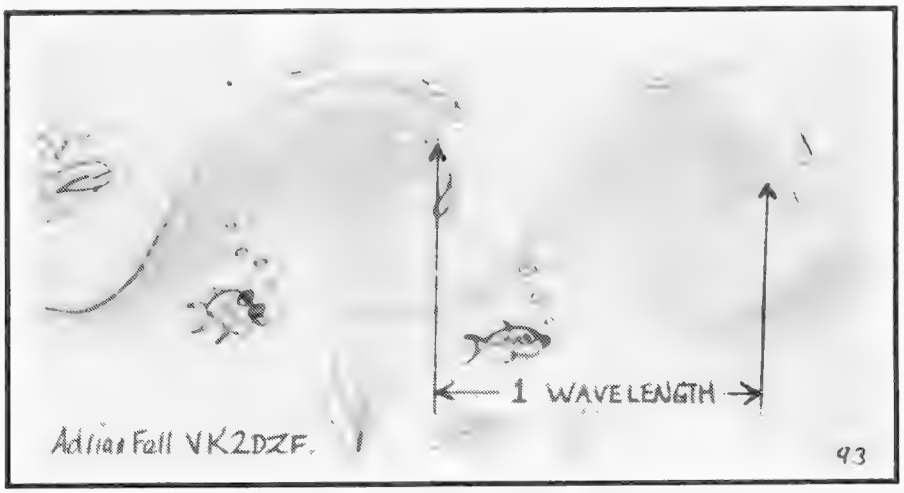
Courtesy and respect for the band plan, which preserves the rights of operators who pursue differing modes and operating practices, needs to be observed for the sake of peaceful coexistence.

The national 2 m band plan **expressly reserves the region below 144.600 MHz for narrow band modes.** The segment 144.600 to 145.700 is for general use, ALL modes. FM is not compatible with narrow band modes and weak signal operation.

The current Call Book provides full details on the 2 m band plan on page 21. All the band plans, from HF through to the SHF bands, are covered on pages 19 through 25.

Thanks to the NSW VHF-to-SHF DX Group for raising the issue.

Don't buy stolen equipment — check the serial number against the WIA stolen equipment register first.



HF PREDICTIONS

Evan Jarman VK3ANI

The Tables Explained

The tables provide estimates of signal strength for each hour of the UTC day for five of the bands between 7 and 28 MHz. The UTC hour is the first column; the second column lists the predicted MUF (maximum useable frequency); the third column the signal strength in dB relative to 1 μV (dBU) at the MUF; the fourth column lists the "frequency of optimum travail" (FOT), or the optimum working frequency as it is more generally known.

The signal strengths are all shown in dB relative to a reference of 1 μV in 50 Ohms at the receiver antenna input. The table below relates these figures to the amateur S-point "standard" where S9 is 50 μV at the receiver's input and the S-meter scale is 6 dB per S-point.

μV in 50 ohms	S-points	dB(μV)
50.00	S9	34
25.00	S8	28
12.50	S7	22
6.25	S6	16
3.12	S5	10
1.56	S4	4
0.78	S3	2
0.39	S2	-8
0.20	S1	-14

The tables are generated by the GRAPH-DX program from FT Promotions, assuming 100 W transmitter power output, modest beam antennas (eg three element Yagi or cubical quad) and a short-term forecast of the sunspot number. Actual solar and geomagnetic activity will affect results observed.

The three regions cover stations within the following areas:

VK EAST The major part of NSW and Queensland.

VK SOUTH Southern-NSW, VK3, VK5 and VK7.

VK WEST The south-west of Western Australia.

Likewise, the overseas terminals cover substantial regions (eg "Europe" covers most of Western Europe and the UK).

The sunspot number used in these calculations is 32.5. The predicted value for June is 30.7.

ar

VK SOUTH — SOUTH PACIFIC

UTC	MUF	dBU	FOT	14.2	18.1	21.2	24.9	28.5
1	17.5	15	13.2	22	14	4	-10	-27
2	18.0	16	13.5	23	15	6	-8	-25
3	18.1	16	13.5	24	16	7	-7	-24
4	18.0	17	13.5	25	17	7	-8	-25
5	17.4	19	13.1	27	17	5	-11	-29
6	15.5	23	11.7	28	12	-3	-24	...
7	13.5	26	10.2	23	3	-16	. .	...
8	11.8	28	8.9	16	-9	-33	...	
9	10.6	30	7.9	8	-21	..	.	
10	9.7	31	7.3	1	-32	...		
11	9.1	32	6.7	-5	.	...		..
12	8.8	32	6.5	-8	..	.		.
13	8.5	32	6.3	-10	.	.		.
14	8.4	33	6.2	-12	.		..	
15	8.4	33	6.2	-13	.	.	...	.
16	7.7	34	5.9	-20	.	.	..	...
17	7.5	34	5.8	-23	.	.	...	.
18	7.6	34	5.8	-23	.	.	...	.
19	7.7	32	5.9	-22	.	. .	...	. .
20	9.0	25	7.0	-6	...	.	.	...
21	11.4	20	8.8	9	-12	-35	.	...
22	13.9	17	10.7	16	2	-13	-35	...
23	15.7	16	12.0	19	9	-3	-21	...
24	16.7	16	12.7	21	12	1	-15	-33

VK WEST — AFRICA

UTC	MUF	dBU	FOT	14.2	18.1	21.2	24.9	28.5
1	8.9	25	-17	. .	...	. .		
2	8.5	19	6.6	-1	-28	. .		..
3	11.2	15	8.4	9	-6	-23	.	...
4	16.1	13	12.5	15	9	1	-13	-29
5	19.1	11	14.6	13	12	7	-2	-14
6	20.1	10	15.3	11	12	8	0	-10
7	20.5	9	15.3	10	12	8	0	-10
8	19.9	9	14.9	10	11	7	-1	-12
9	18.5	9	13.9	10	10	4	-5	-17
10	16.6	10	12.5	12	8	1	-11	-26
11	14.5	12	10.8	12	4	-6	-22	. .
12	12.6	14	9.4	11	-1	-16	-37	. .
13	11.1	18	8.2	9	-9	-28	...	. .
14	10.2	23	7.6	7	-16	-38	.	...
15	9.9	27	7.3	6	-19	.		...
16	9.6	29	7.1	5	-22	.		...
17	9.4	30	7.1	4	-24	.		...
18	9.4	31	7.0	4	-25	.	.	...
19	9.4	31	7.0	4	-25	..	.	.
20	9.1	31	6.9	2	-28	.	. .	.
21	8.6	32	6.6	-2	-34		..	.
22	8.7	32	6.7	-1	-33	. .	...	.
23	9.6	31	7.3	6	-22	.	...	. .
24	9.0	32	6.9	1	-29	...	...	. .

VK EAST — AFRICA

UTC	MUF	dBU	FOT	14.2	18.1	21.2	24.9	28.5
1	9.6	13	7.6	2	-17	-38	...	. .
2	8.8	6	6.8	0	-18	-39	...	...
3	8.5	-2	6.6	-2	-19	-38	...	.
4	11.1	2	8.6	3	-5	-18	-37	...
5	15.8	6	12.2	6	5	-1	-12	-26
6	18.9	7	14.7	6	8	4	-4	-14
7	18.3	7	13.7	6	7	3	-5	-16
8	16.5	8	12.3	7	6	0	-10	-24
9	14.4	8	10.8	8	3	-5	-20	-37
10	12.5	8	9.3	7	-1	-13	-32	..
11	11.0	9	8.2	6	-7	-23	...	..
12	10.2	13	7.5	5	-12	-31	..	...
13	9.8	18	7.2	5	-16	-37	...	. .
14	9.6	25	7.0	5	-20	.	...	. .
15	9.4	28	6.9	4	-22	.	...	...
16	9.3	30	6.9	4	-23	..	..	...
17	9.3	30	6.9	4	-24	.	...	..
18	9.0	30	6.8	2	-27	..	...	.
19	8.5	31	6.5	-1	-32	.	...	..
20	8.6	31	6.6	0	-31	...	.	...
21	8.8	30	6.7	0	-31	...	..	...
22	8.5	30	6.6	2	-34	...	.	..
23	8.2	24	6.4	-5	-36	..	. .	...
24	8.4	16	6.6	-4	-30	. .	.	.

VK SOUTH — AFRICA

UTC	MUF	dBU	FOT	14.2	18.1	21.2	24.9	28.5
1	9.5	21	7.2	5	-18	...	...	...
2	9.2	16	7.1	2	-19	...	...	...
3	11.8	14	8.8	10	-2	-17	-38	...
4	16.5	14	12.8	16	11	3	-9	-24
5	18.8	10	15.2	12	11	6	-3	-15
6	19.7	9	15.9	10	11	7	-1	-12
7	19.0	9	15.3	10	10	5	-3	-14
8	17.7	9	14.1	11	9	3	-7	-20
9	16.0	10	12.6	11	6	-1	-14	-30
10	14.0	10	11.0	10	2	-8	-25	..
11	12.2	11	9.5	8	-4	-18	-39	..
12	10.8	13	8.4	5	-11	-29	..	..
13	9.9	17	7.7	3	-18	-39	..	. .
14	9.5	23	7.3	2	-24	..	...	...
15	9.3	26	7.1	1	-27	..	...	...
16	9.1	28	6.9	0	-29	..	...	...
17	8.9	29	6.8	-1	-32	...	.....	
18	8.8	30	6.8	-2	-34	...	...	...
19	8.6	30	6.7	-3	-36	...	...	...
20	8.4	30	6.5	-6	...	..	. .	...
21	8.7	30	6.8	-3	-35	. .	..	...
22	9.0	30	7.0	1	-29	.	..	...
23	8.7	30	6.8	-2	-34	. .	..	...
24	8.9	25	7.0	0	-29	...	.	...

VK WEST — ASIA

UTC	MUF	dBU	FOT	14.2	18.1	21.2	24.9	28.5
1	21.6	13	16.6	18	18	14	6	-4
2	22.2	13	17.0	16	18	14	7	-2
3	22.9	12	17.4	15	18	15	9	0
4	23.6	13	18.3	15	18	16	10	2
5	23.9	13	18.1	16	19	17	11	3
6	24.0	13	18.3	18	20	18	12	4
7	23.9	14	18.2	20	21	18	12	4
8	22.9	15	17.4	23	22	18	11	1
9	21.0	17	16.1	27	23	16	6	-6
10	18.7	19	14.2	31	21	11	-3	-19
11	16.5	20	12.6	28	14	1	-17	-38
12	14.5	22	11.0	23	5	-12	-36	..
13	13.2	23	10.0	18	-3	-24	. .	...
14	12.6	24	9.5	15	-9	-32	.	. .
15	12.1	24	9.1	12	-14	-39	.	. .
16	11.7	24	8.9	10	-18	..	..	.
17	11.4	24	8.6	8	-21	...	.	...
18	11.4	25	8.7	7	-21	...	.	.
19	10.6	25	8.1	1	-31	. .	..	.
20	9.2	26	7.1	-13	.	..		...
21	8.9	26	6.9	-18	.	...	. .	...
22	11.5	20	8.7	7	-19	.	..	...
23	16.0	15	12.4	19	9	-2	-20	-39
24	19.8	14	15.3	20	17	11	0	-12

VK EAST — ASIA

UTC	MUF	dBU	FOT	14.2	18.1	21.2	24.9	28.5
1	23.1	12	17.6	16	18	15	9	0
2	23.7	12	18.5	15	18	16	10	2
3	24.2	12	18.4	15	18	16	11	3
4	24.5	12	18.7	16	19	17	12	4
5	24.6	13	18.8	17	20	18	13	5
6	23.9	14	18.2	20	21	18	12	3
7	22.2	15	17.0	23	21	17	8	-2
8	19.9	17	15.1	27	21	13	2	-11
9	17.7	20	13.5	30	19	7	-8	-26
10	15.6	22	11.9	27	12	-3	-23	...
11	14.2	23	10.8	23	5	-12	-37	...
12	13.5	24	10.3	21	1	-18	..	...
13	13.0	25	9.8	19	-3	-24	..	...
14	12.5	25	9.6	17	-7	-29	.	.
15	12.1	25	9.2	14	-11	-34	...	..
16	12.0	26	9.2	14	-11	-35	...	.
17	11.0	26	8.4	7	-22	.	...	.
18	9.3	28	7.2	-8	..	.	...	. .
19	8.9	28	6.9	-13	..	.	...	..
20	10.5	27	8.2	5	-25	.	...	...
21	14.6	21	11.4	23	7	-8	-29	...
22	20.6	15	15.9	25	21	14	4	-8
23	22.2	14	17.1	21	20	16	8	-2
24	22.6	13	17.3	18	19	15	8	0

VK SOUTH — ASIA

UTC	MUF	dBU	FOT	14.2	18.1	21.2	24.9	28.5
1	18.7	10	14.2	11	11	6	-3	-16
2	19.5	10	14.8	10	12	7	-1	-11
3	20.0	10	15.0	10	12	8	1	-9
4	20.1	10	15.1	11	12	9	1	-9
5	20.0	11	15.1	12	13	9	1	-9
6	19.5	12	14.7	14	13	9	0	-11
7	18.3	13	13.8	16	13	6	-5	-18
8	16.5	15	12.5	19	11	1	-14	-32
9	14.4	20	10.9	21	5	-10	-32	...
10	12.6	22	9.5	14	-7	-28	...	.
11	11.0	23	8.3	5	-22	...	..	.
12	10.2	25	7.6	-1	-34	...	.	. .
13	9.8	25	7.4	-4	...	...	. .	. .
14	9.6	26	7.1	-8	...	..	. .	...
15	9.4	26	7.0	-10	...	...	. .	...
16	9.3	26	7.0	-10	...	...	. .	..
17	9.3	26	7.1	-10	...	. .	.	...
18	9.0	26	6.9	-14	...	..	.	...
19	8.3	26	6.4	-24	...	..	.	...
20	8.3	26	6.4	-25	..	...	.	..
21	9.9	25	7.7	-4	-39	...	..	.
22	13.1	13	10.1	11	-4	-20	..	...
23	16.0	11	12.3	13	7	-2	-17	-35
24	17.8	11	13.7	13	10	4	-7	-21

VK EAST — EUROPE

UTC	MUF	dBU	FOT	14.2	18.1	21.2	24.9	28.5
1	11.6	-2	8.3	2	-1	-10	-25	.
2	11.4	-7	8.2	0	-2	-10	-23	...
3	12.2	-8	8.9	-2	-1	-7	-18	-32
4	13.8	-5	9.7	-4	0	-3	-11	-23
5	15.9	-2	11.6	-6	1	0	-6	-14
6	17.5	1	12.8	-7	1	2	-2	-9
7	18.3	3	13.4	-6	3	3	0	-7
8	18.8	5	13.8	3	5	5	1	-6
9	18.2	6	13.9	1	6	4	-2	-11
10	16.1	7	12.2	5	6	1	-8	-21
11	14.1	7	10.7	7	3	-4	-18	-34
12	12.9	9	9.7	9	1	-10	-27	.
13	12.3	12	9.3	10	-1	-14	-33	.
14	11.7	16	8.9	11	-3	-18	.	...
15	11.4	19	8.6	11	-5	-23	.	..
16	11.1	25	8.4	13	-8	-28	. .	...
17	11.1	27	8.4	13	-8	-29	. . ..	
18	10.4	29	7.9	10	-15	-39	.	...
19	9.0	30	7.0	0	-30	..	.	...
20	8.7	30	6.8	-2	-34	. .	.	..
21	11.2	28	8.7	15	-7	-29	.	.
22	11.5	24	8.7	15	-2	-19	.	..
23	12.7	14	9.0	13	4	-8	-25	.
24	12.1	5	8.6	6	0	-10	-26	...

VK EAST — EUROPE (Long Path)

UTC	MUF	dBU	FOT	7.1	14.2	18.1	21.2	24.9
1	13.9	15	9.5	-9	15	8	-1	-14
2	13.1	17	8.9	0	15	6	-4	-20
3	12.5	19	8.5	10	16	5	-7	-25
4	11.9	25	8.2	29	19	3	-11	-32
5	11.7	23	8.1	24	17	2	-12	-33
6	12.5	25	8.7	29	20	6	-7	-27
7	14.2	23	9.9	26	23	12	0	-15
8	12.6	19	9.6	10	16	5	-7	-25
9	10.3	11	7.9	-4	8	5	-19	
10	9.9	2	7.6	-20	4	5	-18	-38
11	10.3	-3	7.6	-34	2	5	-17	-34
12	10.0	-9	7.3		0	5	15	-32
13	9.9	-14	7.4		0	5	-14	-29
14	9.8	-17	7.2		1	-4	-12	-26
15	9.7	-19	7.2		-1	-4	-11	-25
16	9.5	-28	7.1	.	-6	-8	-16	-31
17	8.9	...	6.8	.	-11	-15	-25	.
18	9.0	-37	6.9	.	-9	-13	-22	-39
19	10.5	-14	7.7	..	-2	-3	-10	-23
20	13.5	-3	10.4		-1	0	-4	-14
21	16.5	4	12.4		1	4	1	-6
22	16.7	9	11.4		7	9	5	-3
23	15.7	12	10.7	-32	12	9	4	-6
24	14.7	13	10.0	-19	13	9	1	-10

VK SOUTH — EUROPE (Long Path)

UTC	MUF	dBU	FOT	7.1	14.2	18.1	21.2	24.9
1	13.1	12	9.1	-15	11	4	-5	-19
2	12.4	15	8.6	0	13	3	-9	-26
3	11.8	19	8.3	12	14	1	-13	-33
4	11.4	24	8.0	27	16	-1	-17	. .
5	11.4	23	8.0	25	15	-1	-17	...
6	12.1	25	8.6	29	18	3	-12	-33
7	13.5	23	9.7	26	21	9	-3	-21
8	12.4	18	9.7	12	14	0	-14	-34
9	11.0	12	8.5	0	7	-7	-22	...
10	10.1	6	7.8	-11	3	-10	-25	...
11	9.7	0	7.5	-22	1	-10	-25	. .
12	9.4	-6	7.2	-31	0	-9	-22...	
13	9.3	-12	7.3	-39	0	-8	-19	-38
14	9.2	-16	7.0	..	0	-7	-17	-34
15	9.1	-31	7.0	.	-8	-14	-24	. .
16	8.8	.	6.9	.	-16	-21	-33	.
17	8.5	. .	6.6		-24	-30	. .	.
18	8.7	...	6.8	.	-24	-28		. .
19	9.9	-30	7.6	...	-9	-11	-19	-33
20	12.3	-10	9.8	...	-3	-2	-7	-17
21	14.9	-2	11.9	...	-4	0	-3	-10
22	15.7	1	11.0	...	-2	3	0	-6
23	14.7	4	10.3	...	3	4	0	-9
24	13.8	8	9.6	-35	8	5	-2	-14

VK WEST — EUROPE (Long Path)

UTC	MUF	dBU	FOT	7.1	14.2	18.1	21.2	24.9
1	12.7	2	8.9	..	3	0	-8	-21
2	12.0	5	8.4	-24	5	-1	-11	-27
3	11.4	8	8.1	-11	7	-3	-15	-33
4	11.1	11	7.9	-2	7	-4	-18	-38
5	11.1	13	7.9	2	8	-4	-18	-39
6	11.8	15	8.5	5	11	-1	-14	-33
7	13.1	16	9.5	5	14	4	-7	-23
8	14.8	16	10.7	2	16	9	0	-13
9	14.1	13	11.6	-2	13	4	-6	-22
10	12.3	8	9.6	-15	6	-3	-14	-31
11	10.8	1	8.4	-25	1	-8	-20	-38
12	10.0	-6	7.7	-34	-1	-9	-21	..
13	9.6	-12	7.3	...	-2	-9	-20	-38
14	9.3	-17	7.1	...	-3	-8	-18	-34
15	9.2	-30	7.2		-8	-13	-23	-39
16	9.1	. .	6.9		-15	-19	-29	
17	9.0	.	6.9		-20	-24	-33	..
18	8.8	.	6.8		-26	-29	-39	. .
19	8.4	...	6.5		-30	-34	.	. .
20	8.6	...	6.7		-24	-29		.
21	9.8	-26	7.4	.	-7	-10	-18	-32
22	12.2	-10	9.7		4	-4	-10	-20
23	14.3	-3	10.1		4	-1	-5	-13
24	13.3	-1	9.4	...	0	0	-6	-16

VK EAST — MEDITERRANEAN

UTC	MUF	dBU	FOT	14.2	18.1	21.2	24.9	28.5
1	13.0	6	9.9	7	2	-6	-20	-38
2	13.1	1	9.9	2	1	-5	-18	-33
3	16.2	3	12.0	-1	3	1	-6	-16
4	20.6	6	15.5	-4	5	6	3	-3
5	23.5	7	18.0	-7	5	7	6	1
6	23.7	6	17.9	-7	4	7	5	0
7	22.5	6	17.1	-6	5	6	4	-1
8	20.6	6	15.6	-2	6	6	1	-5
9	18.2	6	13.7	2	6	4	-3	-13
10	16.0	7	12.1	5	5	0	-10	-23
11	14.0	8	10.6	8	3	-5	-19	-36
12	12.8	10	9.7	9	0	-11	-28	...
13	12.3	15	9.2	12	0	-15	-35	.
14	11.8	19	8.9	13	-2	-19	..	...
15	11.5	25	8.8	15	-4	-23	..	...
16	11.3	27	8.5	15	-6	-26	...	...
17	11.3	28	8.6	15	-6	-26	..	...
18	10.7	29	8.1	12	-11	-34	..	...
19	9.5	30	7.3	5	-23	..	..	...
20	9.3	30	7.2	3	-25			
21	11.6	28	8.7	17	-4	-24	...	...
22	11.6	27	8.9	17	-1	-19	...	...
23	11.3	19	8.7	12	-3	-19	...	...
24	14.4	15	11.0	15	9	0	-14	-31

VK SOUTH — MEDITERRANEAN

UTC	MUF	dBU	FOT	14.2	18.1	21.2	24.9	28.5
1	13.0	13	9.9	12	3	-7	-24	...
2	12.9	5	9.7	6	1	-7	-22	...
3	16.1	5	12.7	3	5	1	-7	-19
4	20.8	7	15.8	-1	7	7	3	-3
5	22.3	6	16.7	-4	5	7	4	-1
6	22.2	6	16.6	-5	5	6	3	-2
7	21.5	5	16.1	-5	5	5	2	-3
8	20.0	5	15.0	-2	5	5	0	-7
9	18.0	5	13.5	0	5	3	-4	-14
10	15.7	5	11.8	4	4	-1	-11	-25
11	13.6	5	10.2	5	1	-7	-22	-39
12	11.9	8	8.9	6	-3	-16	-36	..
13	11.0	12	8.2	6	-8	-25	..	.
14	10.6	17	7.9	7	-12	-31	...	...
15	10.4	24	7.6	8	-15	-38	...	...
16	10.2	26	7.5	7	-17	...	...	...
17	10.2	28	7.5	8	-18	...	..	...
18	10.1	29	7.6	8	-18	..	...	...
19	9.9	29	7.5	6	-21	..	...	...
20	9.3	29	7.1	2	-28	.		..
21	9.4	29	7.2	2	-27	...	...	...
22	10.6	29	8.2	12	-12	-35	...	...
23	10.1	26	7.8	8	-16	...	...	...
24	14.0	20	10.5	19	7	-5	-24	...

VK WEST — MEDITERRANEAN

UTC	MUF	dBU	FOT	14.2	18.1	21.2	24.9	28.5
1	12.0	19	9.1	13	-2	-18	...	.
2	12.0	9	9.0	8	-3	-16	-36	. .
3	14.8	7	11.7	6	4	-3	-15	-31
4	19.0	8	14.4	4	8	5	-1	-10
5	21.0	7	16.3	1	7	6	1	-6
6	21.2	6	16.0	-1	6	6	1	-6
7	21.2	6	16.0	-1	6	6	1	-6
8	20.8	6	15.7	-1	6	5	0	-7
9	19.6	6	14.9	1	6	4	-1	-10
10	17.9	6	13.5	4	6	2	-6	-17
11	15.7	7	11.8	7	4	-2	-14	-29
12	13.7	9	10.4	8	1	-10	-27	. .
13	12.1	12	9.1	8	-5	-20	...	...
14	11.1	16	8.4	7	11	-31	.	. .
15	10.7	22	8.1	8	15	-38	. .	.
16	10.4	25	7.8	6	-19	.		.
17	10.2	26	7.7	5	-21	.		. .
18	10.1	28	7.6	5	-23			. .
19	10.1	28	7.6	5	-23			. .
20	9.6	28	7.3	2	-28			. .
21	8.8	29	6.7	-6	.		.	. .
22	8.6	29	6.7	-7		.	.	.
23	10.5	27	7.9	8	-18			. .
24	10.3	27	7.9	8	-16	.	.	...

VK EAST — USA/CARIBBEAN

UTC	MUF	dBU	FOT	14.2	18.1	21.2	24.9	28.5
1	23.9	8	18.1	0	9	10	7	1
2	23.4	11	18.3	7	13	13	9	3
3	21.4	14	17.2	15	17	14	8	0
4	19.5	17	15.6	22	19	14	5	-5
5	18.3	21	14.5	29	22	14	2	-10
6	17.4	24	13.8	32	22	13	0	-15
7	16.6	25	13.5	32	21	10	-4	-20
8	15.7	26	12.2	31	18	6	-10	-29
9	14.4	26	10.9	26	11	-4	-24	...
10	13.1	27	9.9	22	4	-12	-36	...
11	12.5	27	9.4	20	1	-17	...	...
12	11.9	28	8.9	18	-2	-22	...	.
13	11.5	27	8.6	16	-5	-25	...	..
14	11.3	21	8.5	12	-7	-26	...	..
15	11.0	16	8.4	9	-7	-24	..	.
16	10.5	8	8.0	4	-10	-26		.
17	9.2	-3	7.1	-1	-15	-33		.
18	8.9	-11	6.9	-2	-14	-30	.	..
19	11.4	-5	8.9	0	-5	-15	-31	
20	15.9	1	12.3	-1	2	-2	10	-22
21	19.7	4	15.2	-4	4	3	-1	-9
22	21.7	5	16.6	-6	4	5	2	-4
23	22.5	5	17.2	-6	4	6	3	-2
24	23.3	6	17.7	-4	6	7	5	0

VK SOUTH — USA/CARIBBEAN

UTC	MUF	dBU	FOT	14.2	18.1	21.2	24.9	28.5
1	22.8	9	17.7	2	9	10	6	0
2	22.9	11	17.1	9	14	13	8	1
3	22.7	14	17.0	18	19	16	10	2
4	20.7	19	16.5	26	23	18	9	0
5	19.3	22	15.4	31	25	17	7	-5
6	18.5	22	13.9	32	23	14	1	-13
7	16.1	24	12.0	29	17	5	-11	-29
8	13.9	26	10.4	25	9	-6	-26	...
9	12.2	28	9.1	19	0	-18	..	..
10	11.3	28	8.3	15	-6	-27	.	..
11	10.9	29	8.1	13	-9	-31	.	.
12	10.6	29	7.8	12	-12	-35	..	..
13	10.4	28	7.8	10	-13	-36	...	...
14	10.4	22	7.7	8	-13	-34	...	...
15	10.4	15	7.7	6	-11	-30	...	...
16	10.1	7	7.6	3	-12	-29	..	
17	9.4	-2	7.2	0	-13	-30	.	.
18	9.5	-7	7.3	0	-11	-25	. .	.
19	11.2	-5	8.2	0	-5	-15	-31	..
20	14.5	0	11.2	0	1	-4	-14	-28
21	17.7	3	13.6	-2	3	2	-4	-14
22	20.0	5	15.3	-4	4	4	0	-7
23	21.2	6	16.0	-4	5	6	2	-4
24	22.2	7	16.7	-2	7	7	4	-1

VK WEST — USA/CARIBBEAN

UTC	MUF	dBU	FOT	14.2	18.1	21.2	24.9	28.5
1	20.9	6	15.8	-5	5	6	3	-2
2	21.8	9	16.5	0	8	9	6	0
3	21.1	12	16.9	6	13	12	8	1
4	19.3	14	15.4	13	15	12	6	-3
5	18.0	18	14.3	19	18	12	3	-7
6	17.2	22	13.6	25	20	12	1	-12
7	16.3	25	13.2	29	20	11	-2	-17
8	15.4	27	12.0	30	19	8	-7	-24
9	14.6	29	11.3	30	18	5	-11	-30
10	13.6	29	10.3	27	11	-4	-24	.
11	12.0	30	9.0	21	2	-16		
12	11.1	31	8.3	17	-4	-24		. .
13	10.8	30	8.0	15	-6	-28		. .
14	10.5	25	7.8	12	-8	-28		...
15	10.3	18	7.8	9	-8	-26	.	. .
16	10.3	11	7.7	7	-7	-23	..	.
17	10.4	5	7.8	5	-5	-20	...	..
18	10.1	-2	7.6	3	-5	-18	38	...
19	9.4	-10	7.2	1	-6	-19	-38	...
20	9.4	-14	7.3	1	-5	-16	-33	
21	11.2	-9	8.3	0	-1	-9	-22	-39
22	14.5	-2	11.2	-3	1	-1	-9	-21
23	17.7	2	13.6	-6	3	2	-2	-10
24	19.9	5	15.2	-7	3	5	1	-4

VK SOUTH — EUROPE

UTC	MUF	dBU	FOT	14.2	18.1	21.2	24.9	28.5
1	12.1	8	8.5	8	0	-10	-27	...
2	11.8	0	8.3	3	-1	-10	-25	...
3	12.6	-3	8.9	0	0	-6	-18	-32
4	14.5	-2	10.0	-3	1	-1	-10	-21
5	16.9	1	12.0	-6	2	1	-3	-11
6	18.7	3	13.3	-8	2	3	0	-6
7	19.6	4	14.0	-8	3	4	1	-4
8	19.4	4	14.3	5	4	4	0	-7
9	17.5	4	13.2	2	4	2	-4	-13
10	15.2	3	11.5	2	3	-1	-11	-23
11	13.2	3	9.9	4	1	-7	-21	-37
12	11.6	4	8.7	5	-3	-15	-33	
13	10.7	8	8.0	5	-8	-23		
14	10.4	13	7.7	6	-11	-29		.
15	10.1	18	7.5	6	-14	-35		..
16	10.0	25	7.4	6	-18			...
17	10.0	27	7.4	7	-19			..
18	10.0	29	7.5	7	-19			...
19	9.7	29	7.3	5	-22			.
20	9.1	30	6.9	1	-30		..	.
21	9.1	30	7.0	1	-29		.	..
22	10.8	29	8.4	12	-11	-34		.
23	11.2	25	8.6	15	-4	-23	...	...
24	12.8	18	8.9	16	4	-8	-27	. .

VK WEST — EUROPE

UTC	MUF	dBU	FOT	14.2	18.1	21.2	24.9	28.5
1	12.7	17	8.8	15	2	-11	-30	...
2	12.3	8	8.6	7	0	-12	-29	...
3	13.1	2	9.2	3	0	-7	-21	-37
4	15.2	2	10.4	0	2	-1	-11	-23
5	17.9	3	12.6	-3	4	2	-3	-11
6	19.9	5	13.9	-5	4	4	1	-5
7	20.8	5	14.6	-6	4	5	2	-3
8	21.2	6	14.9	-6	4	6	3	-2
9	21.7	6	15.2	-4	5	6	3	-3
10	19.9	6	15.1	0	6	5	0	-8
11	17.6	6	13.3	4	6	2	-6	-17
12	15.4	7	11.7	7	5	-2	-14	-29
13	13.5	9	10.2	9	1	-9	-26	. .
14	12.4	13	9.4	10	-2	-16	-37	...
15	11.9	17	9.0	11	-4	-21	...	...
16	11.5	22	8.6	12	-7	-27	...	...
17	11.2	24	8.5	12	-10	-31	...	...
18	11.0	26	8.3	12	-11	-33	...	...
19	11.0	27	8.4	12	-11	-34	...	...
20	10.4	28	8.0	8	-17	...	...	...
21	9.3	29	7.2	1	-29	...	...	...
22	9.1	29	7.1	-1	-32	...	...	...
23	11.2	28	8.5	14	-8	-30	...	...
24	10.8	26	8.3	11	-11	-32	...	...

VK WEST — SOUTH PACIFIC

UTC	MUF	dBU	FOT	14.2	18.1	21.2	24.9	28.5
1	20.5	12	15.5	17	16	11	2	-9
2	21.5	12	16.2	18	17	13	4	-6
3	22.1	12	17.1	19	18	14	6	-4
4	22.2	13	16.6	21	19	15	7	-3
5	22.0	14	16.5	24	21	16	7	-3
6	20.8	17	15.6	28	23	16	5	-7
7	18.3	20	13.9	30	21	11	-3	-19
8	16.0	24	12.1	29	16	3	-14	-34
9	14.0	26	10.5	26	9	-7	-28	.
10	12.4	29	9.3	21	1	-18		.
11	11.4	31	8.5	17	-5	-27	.	...
12	10.9	31	8.1	15	-9	-32		...
13	10.6	31	7.8	13	-12	-36	.	..
14	10.3	32	7.6	11	-15	-39	.	. .
15	10.1	32	7.6	10	-16	.		
16	10.1	32	7.5	10	-16		.	
17	9.3	33	7.1	5	-24		..	.
18	9.1	34	7.0	4	-27		..	.
19	9.2	33	7.0	4	-25			.
20	9.3	27	7.2	4	-23	..		
21	11.0	21	8.1	10	-9	-29	.	.
22	14.1	17	10.9	17	5	-7	-26	
23	17.1	14	13.1	18	12	4	-9	-24
24	19.4	13	14.7	18	15	9	-1	-13

HAMADS

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● AMIDON FERROMAGNETIC CORES: For all RF applications. Send business size SASE for data/price to RJ & US Imports, PO Box 431, Kiama NSW 2533 (no enquiries at office please ... 14 Boanyo Ave Kiama). Agencies at: Geoff Wood Electronics, Sydney: Webb Electronics, Albury: Assoc TV Service, Hobart: Truscotts Electronic World, Melbourne.

● WEATHER FAX programs for IBM XT/ATs *** "RADFAX2" $35-00, is a high resolution shortwave weatherfax, Morse and RTTY receiving program. Suitable for CGA, EGA, VGA and Hercules cards (state which). Needs SSB HF radio and RADFAX decoder. *** "SATFAX" $45-00, is a NOAA, Meteor and GMS weather satellite picture receiving program. Needs EGA or VGA & WEATHER FAX PC card, + 137 MHz Receiver. *** "MAXISAT" $75-00 is similar to SATFAX but needs 2 MB of expanded memory (EMS 3.6 or 4.0) and 1024 x 768 SVGA card. All programs are on 5.25" or 3.5" disks (state which) plus documentation, add $3-00 postage. ONLY from M Delahuntly, 42 Villiers St, New Farm QLD 4005. Ph (07) 358 2785.

● REFLECTOMETER, SWR 50 MHz — 3.8 GHz, 50 ohms, machined heavy brass. Silvered N-type connectors. Schottky diode-chip components. Single diode system. No swapping of connectors. $150 Keith Searle VK4ZKS MSI 1877 Malanda QLD 4885 (070) 96 6149.

FOR SALE ACT

● CREATE RC5A-2 antenna rotator heavy duty worm drive in good condition suitable for large beam complete with 60 m of control cable $470. Len VK1LR (06) 287 0221 BH or (06) 281 6570 AH.

FOR SALE NSW

● ICOM 24AT VHF-UHF HT BP84 7.2 V cig lighter cable with noise-fil, leather case, mob bkt, inst manual, Aristo nicad batt charger, Diamond RHTT UHF-VHF ant, as new $850. Rolly VK2GFO (044) 64 3361.

● PHILIPS 747 UHF transceivers some already on 70 cm band others easily converted c/w mic and speaker $50; A Couple are multi channel, manual available $10. David VK2BDT QTHR (048) 21 5036.

● VALVE PA amplifier uses 4 807s British built wall mounted with separate tuner $50; IC2G handheld 2 m hi-band VHF $250; INFOTECH M75 + M150 RTTY terminal $80; HEATHKIT valve GDO with coils $10. Doug VK2DHK QTHR (063) 31 7775 (018)200 871.

● VENTURA Publisher V4.2 latest software from Corel CD ROM format for Windows, ideal for newsletter or course notes. New unopened box $250. Doug VK2KIQ QTHR (02) 587 4989 AH or (02) 411 9538 BH.

● TS43X $1350; FRA-7700 Pre-amp $70; MULTI MK2 ATU $70; AIRCRAFT scanner Rama $150; MOBILE whips 40/20/15/28 $75; YAESU YG221 digital display as new $145; MOBILE mount TS440 $35; FM kit 440/430 $250. J Jeffery VK2AJY (043) 93 2626.

● DECEASED ESTATE OF VK2BII. YAESU FT401 c/w mic & speaker $200; YAESU FT401 c/w mic $175; KW2000 c/w p/s & mic $200; SIGNAL injector (ITK) $20; WOODPECKER blanker $30; ACTIVE audio filter (ERC) $80; UNIVERSAL VTVM $30; SWR meter (new) $25. All items ONO plus freight. R Price VK2AWQ (064) 94 1347.

● COMPLETE Novice station FT7 xcvr 8I09076 h/mic mounting brkt FC700 ATU 3FO30350 both manuals orig cartons 13.8 V, 6 A PS all very good condn G5RV ant throw this over two trees you're on air. Alf VK2API QTHR (044) 71 3493. Licensed Amateurs Only.

● NALLY tower with rotator 5 El Yagi perfect elevated location for radio at Erina on 1/2 acre, fine home 4 beds big workshop $375,000. M. Barry VK2IH QTHR (043) 67 7499.

● YAESU FT-4700 dual band 2 m/70 cm mobile, front panel remote mounting kit (long 6 m cable version), brand new, never unpacked, save $400 under current model new price, $1200; SCANNER PRO 2022 210 channel desktop/mobile, mains + 12 V, in original packing, as new, cost $550, sell $360; STANDARD nicad battery pack CNB161 700 mAh, good condition, $60. Can transport interstate if required. Brad VK2KQH, day/early evening (02) 906 5855, otherwise 018 64 0377.

● FR101 RECEIVER, digital, 160 m through 2 m, all filters and extras $350 ONO Ray VK2COX (02) 661 9316 AH.

● SATELLITE Dish 2.2 m & Ku LNB $175; INFO-TECH CW & RTTY encoder/decoder $350. Bob VK2CAN (02) 416 3727.

● COLLINS Company KWM2 transceiver $900. Charles VK2ZR (02) 661 4143.

● YAESU FT101E mint $450; YAESU FRG7700 rcvr memory $350; MFJ TUNER/PRE new $190; TOKYO HC500 ATU $150; MINT Kenwood TM701A VHF/UHF mobile $650; YAESU FT212RH 2 m mobile new $499; TELEREADER CWR880 $250 mint. Harley VK2AHD (069) 21 1004.

● TELREX Antenna monarch six elements unique patented balun, brand new, imported direct any reasonable offer accepted from WIA members. Leo VK2NHT QTHR (02) 484 1389.

● DECEASED ESTATE VK2QL. KENWOOD TS930S HF transceiver with AT930 auto ATU $1500; UNIDEN 2020 HF transceiver $350; HYGAIN RF550A combined wattmeter and aerial switch $75. Peter VK2BPN (02) 871 2971.

● EXPLORER 70 cm 40 channel transceiver with repeater option excellent condition serial no. 6300338 $150. Peter VK2BEU QTHR (02) 872 3381.

FOR SALE VIC

● MONITOR ex Microbee computer, 30 cm screen, green, phosphor CRT, input phono pin jacks, 75 ohm or higher impedance reasonable condition. Best offer. Paul VK3NFJ QTHR (03) 803 2982.

● ICOM IC751 HF c/w workshop manual $1600; IC730 HF c/w BPT filter $600; IC255A 2 m 25 watt $300, all equipment with orig packaging and instruction manuals. David VK3DPM QTHR (03) 598 1015.

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● ALINCO Hand held, TX 144-148 MHz RX 136-176 MHz, 20 memory, band scan, memory scan, spare battery, charger, leather case, car bracket, 2 years old $360. Kerry VK3KFC (059) 96 3580.

● AMERITRON AL811X linear amp unused complete with tubes $950. Stan VK3VJQ (051) 55 3475.

● VERTICAL Antenna 5 band Nagara V-5JR GC $60. David VK3DNG QTHR (03) 859 4698.

● COLLINS 75S3 receiver and 32S1 transmitter both in EC, $650 lot. Rob VK3JE (060) 37 1262.

● HONDA portable electric generator model EM300 output 240 V 50/60 Hz 200/250 VA or 12 VDC 100 W 4 stroke uses lead free petrol very quiet. User and service manual included as new $450. Ray VK3JI QTHR.

● FV-707DM remote VFO suits FT-707 $250; STEP down transformer 240-110 20 A $150. Ron VK3AEO (03) 707 3405.

FOR SALE QLD

● YAESU FT75B txcvr s/n 50724Y FP-75B AC power supply, FV50C ext VFO instruction manual, "golden oldie" operating but needs alignment $100. Lot plus freight. DICK Smith 4-way coax switch $50 plus freight. Ron VK4BF QTHR (077) 71 5802.

● ESTATE OF EVAN FELL. Tender transformers, capacitors variable HI-V, inductors variable fixed, receivers, telephones, test gear, transmitting valves, magazines books. No military radios. Send 85c stamps. Contact Peter Hadgraft, 17 Paxton St, Holland Park Qld 4121, AH (07) 397 3751.

● ICOM IC251A all mode transceiver good condition, no handbook mic included $500. Glenn VK4TZL (071) 28 3827. Lic amateurs only.

● 5 ELE Triband yagi $250; DAIWA DR7500 rotator and DC7001A control $200. All items plus freight and include papers. Alan VK4AAR (018) 45 7691.

FOR SALE SA

● MAGAZINES, Amateur Radio Action (24) Vol 1-9, Electronic Aust (97) 1970-93, Amateur Radio (171) 1979-93. Rex VK5ARV (08) 381 5676.

WANTED ACT

● TEN-TEC Paragon or OMNI V. Consider Corsair. Must be excellent condition. Richard VK1RJ (06) 258 1228 AH.

WANTED NSW

● FT-101B or FT-101E in good working condition with manual and spare valves an advantage all offers considered. Robert VK2GZ QTHR (069) 62 3576.

● DIP meter, function generator; MINILAB RF signal generator. Ian VK2CIB (02) 772 8213 BH.

● MONTH and Year issue of AR that included modification to 530S to correct intermittent fault of digital read out and signal variation. Article by VK station. Garnet VK2CGF QTHR (065) 51 0767.

● WOULD anyone have a couple of two metre cavities even one from two people would be good. A fair price please. A Walsh VK2TBW Phone (048) 61 2092 or fax (048) 61 1536 anytime.

WANTED VIC

● FRIENDLY farmer/family with reasonable sized property who would be kind enough to give an opportunity to family of five to camp at farthest corner of their property through school holidays. Thomas VK3HH (03) 547 0910.

● FT225 multi mode 2 m transceiver in good condition. Also FTV901 transceiver. John VK3ATQ (03) 542 2854.

● ICOM AG-35 70 cm Pre-Amp also a KR-5400 or KR-500 rotator for satellite work. Paul VK3EPD (059) 83 1771.

● FM828E or similar for conversion to 6 m, also PRC-25 military TXRX. Damien VK3CDI (054) 27 3121.

WANTED QLD

● NUVISTOR type 8056. Trevor VK4ATS QTHR (07) 265 4974.

● CIRCUIT diagram or photocopy of workshop manual for Crammond HF marine transceiver model CSB150, costs repaid. Geoff VK4ZGF QTHR (071) 22 1368 AH.

WANTED SA

● FOR copying or copy of handbook for AWA distortion and noise meter model 3A56068. Yuri VK5ZYS QTHR (08) 47 0537.

MISCELLANEOUS

● PLEASE SEND your donation of QSL cards, old or new, to the Hon Curator of WIA QSL Collection, 4 Sunrise Hill Road, Montrose Vic 3765, Tel (03) 728 5350. Let us save something for the future.

● HOMEBREW COMPETITION open to all, cash prizes, Moorabbin District Radio Club Hamfest. Saturday, 14 May at Brentwood Secondary College, Glen Waverley, Map Ref 71-C-7. Competition details from David Armstrong VK3XJP/VK3PNL (03) 880 8286 (AH) or (018) 99 8665. Book space for preloved gear with Trevor Armstrong VK3JJR (03) 720 7609 AH. Entensive trade exhibits, free parking, entry $3.00. Food available 10 am to 3 pm.

Editor's Comment

Continued from page 3

could be the world's oldest amateur. Thanks to information sent in by a helpful reader we now know that the world's oldest amateur was probably a W1 from Vermont, who died recently aged 106. So Harry is in there with a chance.

And finally, at the last Publications Committee meeting we all agreed that *Amateur Radio* would look even better with more photographs. So keep those cameras clicking, folks; it's your photos that fill the pages and the more the merrier.

Bill Rice VK3ABP
Editor
ar

Hamads

Please Note: If you are advertising items For Sale and Wanted please use a separate form for each. Include all details; eg Name, Address, Telephone Number (and STD code), on both forms. Please print copy for your Hamad as clearly as possible.
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*Deceased Estates: The full Hamad will appear in AR, even if the ad is not fully radio equipment.
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Caulfield South, Vic 3162, by the deadline as indicated on page 1 of each issue.
*QTHR means address is correct as set out in the WIA current Call Book.

*WIA policy recommends that Hamads include the serial number of all equipment offered for sale.
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S T O P P R E S S

UPDATE: SPECTRUM MANAGEMENT 1993/94

Several points were made by SMA's representative Mr Peter Stackpole, Guest Speaker at WIA's Annual Convention Dinner on 30th April 1994.

The first subject is the development of new licensing approaches, both for greater efficiency in the system and in order to offer radiocommunications users more flexible and suitable licensing.

The second subject is the potentially far-reaching work to develop a standards regime which will support strong growth in use of the radiofrequency spectrum but contain interference.

The third subject is the internal restructuring of the SMA combined with multiple levels of consultation with clients designed to make the SMA a highly consultative and responsible regulator.

The SMA is now nearing the end of a public inquiry into the system of Apparatus Licensing. The WIA is among the 340 organisations and individuals which have made submissions. The SMA is in the last stages of preparing a report to the Minister which is due at the end of May. Some conclusions of that report are:-

- *there was support for simplifying licence categories and support for the SMA proposed framework for service charges and licence fees.*
- *SMA proposes to issue 5 year licences to any user on request.*
- *Short term licences for visitors from overseas will continue to be issued with a fee on a pro-rata basis.*

It is expected that the SMA will publish, around July or August, a draft determination of new fee levels.

The review of apparatus licensing will not result in fundamental change in the way the spectrum is managed in Australia. Its results will be nonetheless very significant in improving the efficiency, equity and rationality of licensing and pricing.

There are two issues that are of importance to amateur radio operators. The first is the simplification of present licensing conditions and

- *the addition of a Novice Limited class on 2 metres*
- *a revision of Limited licensees' frequency allocations to include frequency about 29 Mhz and*
- *a review of the Novice class frequency allocation and power.*

These changes are not expected to be implemented until sometime near the end of this year.

The second issue concerns new interference provisions relating to the operation of amateur stations. These provisions are being proposed to encourage amateur radio operators to take more responsibility in the resolution of interference caused by their transmissions, and will involve the development of guidelines to be used to enable interference problems to be resolved between the amateur and the party affected by the interference. These guidelines will be developed cooperatively and in consultation with the amateur community and will be framed to ensure that the rights of both parties are preserved.

Class licences have already been determined for some categories such as low interference potential devices, e.g. transmitters for control of toys or garage doors; standard mobile telephone handsets communicating with base stations are another case.

SMA's present intention is to proceed to class licensing for citizen band radio services and handphones operating at 27 MHz. It is unlikely that amateur radio licences will be converted to class licences in this first round. Most probably amateur licences will be identified as separate categories under the apparatus licence scheme.

SMA have put forward to Government proposals for an EMC framework in Australia. This ***will not be retrospective****. From 1 January 1996 the Australian framework is expected to involve:-*

- *introduction of mandatory emission standards for all electrical and electronic equipment which emits radio frequency energy;*
- *the application of standards to all equipment manufactured in or imported into Australia for local use.*
- *development of immunity standards, either mandatory or voluntary, for equipment -likely to be affected- by EMI;*
- *determination of standards by the SMA following development through a public process conducted by Standards Australia.*
- *compliance through either self-certification or testing, plus labelling by suppliers;*
- *administration of the EMC framework through the SMA.*

SMA has made a major effort to engage in thoroughgoing consultation and interaction with its clients.

The Radiocommunications Consultative Council is central to consultation on spectrum issues. All major users (including the WIA) and consumer organisations are represented on it.

Where significant change to the system is proposed the SMA has adopted the practice of publishing discussion papers and taking comment. The SMA has issued two major ones so far on the review of the apparatus licence system and on an EMC regime. You can expect another later this year on the detail of spectrum licensing.

A FULL REPORT WILL BE CONTAINED IN FUTURE ISSUES OF AMATEUR RADIO

WIA Divisional Bookshops

The following items are available from your Division's Bookshop (see the WIA Division Directory on page 3 for the address of your Division)

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Ant. Compendium Vol 2 Software 5.25" IBM Disk	BR293	$22.00
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Antenna Note Book W1FB — ARRL	BR179	$26.00
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G-QRP Antenna Handbook — RSGB — 1992 1st Edition	BR452	$22.50
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HF Antennas for all Locations — RSGB — 1993	BR088	$45.00
mntenna Compendium Vol 1 — ARRL	BR163	$26.00
Novice Antenna Notebook — DeMaw W1FB — ARRL	BR162	$20.00
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